

Cancer at Home and Abroad*

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CANCER, according to the recorded rates of mortality, is a widespread disease in all countries. These rates indicate that it is the second of the "killing diseases," having in late years usurped the place long held in this respect by tuberculosis. The mortality from cancer in Ontario has risen from 69.4 per 100,000 of population in 1914 to 109.5 in 1930. In the last decade there has been a rise in the mortality of 20 points, or 31 per cent. In Canada there is a corresponding increase in this mortality. The death rate from cancer in England and Wales has risen from 27 per 100,000 in 1847 to 145.3 in 1930; in the United States and European countries the increase in cancer mortality has been continuous over a long period.

There is a conception that cancer is almost unknown, or at least of low incidence, among the primitive races; but a careful analysis of the mortality records among Canadian Indians made by the writer in 1920 revealed the fact that the death rate was upwards of 70 per 100,000 of these people, and when one considers how incomplete these records likely are, how poor the opportunity for skilful diagnosis, how shy Indians and particularly Indian women are of a white doctor, and the fewer number of Indians of advanced age compared with whites, one is forced to the conclusion that the mortality from cancer among Canadian aborigines is probably relatively quite as high as among white people.

Authoritative statements in respect to the primitive races elsewhere—in Ceylon, in the Philippines, in India, in Australia and in other countries—afford similar proof of a relatively high cancer mortality. In Japan, China and Africa, one reads the same story. With reservations for difference in climate, environment and racial habits, the mortality rates of cancer and its incidence are probably not widely removed from those of the so-called civilized races.

While statistics are now better compiled than at any former period, they are, in respect of disease, very unreliable. This is particularly

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true in respect of cancer, since many forms of the disease, especially of the internal organs, are difficult to diagnose.

All statistics agree that the reported cancer deaths are increasing. The average age of people has also been increasing, partly from lowered death rate and partly from lowered mortality, the result of public health activity. Obviously, every person saved from death in youth becomes a possible victim of cancer in later years and, consequently, every improvement in public health leads to an increased cancer mortality. A high crude cancer rate is proportionate to the degree of control of preventable diseases. Countries with a good public health service have the highest cancer rates. Every advance in diagnosis, in medical and hospital care, adds to the number of cancer records. So do the use of X-Rays, radium, effective surgery, the use of insulin and the increase of autopsies.

Certificates of death, while vastly better than those of a generation ago, are frequently valueless. Many people have the mistaken idea that a death from syphilis, tuberculosis, cancer, or mental derangement, is a disgrace, and extraordinary means are sometimes taken to prevent such a report. Doctors are frequently importuned to record something other than the truth. In certain countries, it is said, the family doctor never places a diagnosis of cancer on the death certificate. In many cases of cancer the only diagnosis is made at autopsy.

Whether or not there is a definite increase in cancer as a whole, it seems certain that there is a real increase in the number of persons of the cancer age.

The Control of Cancer

Opportunity for observation of the methods of control of cancer in many countries during the past year, an extensive review of the voluminous literature on the subject, and a study of both curative and preventive measures, indicate that while the clinical results in all lines of treatment in this country are quite equal to the best to be found elsewhere, the facilities for treatment, apart from surgery, are in most places in Canada entirely inadequate. Surgical services for cancer in Canada both in personnel and equipment need no apology. They are quite equal to the best. Radio-therapeutic services, except in a very few places, lack proper equipment, trained personnel and the organization necessary to secure the best results. Investigation all over the world shows that this type of treatment will be productive of the best results only when its use is confined to a few well-equipped centres, where there are plenty of patients, where there is an adequate follow-up of cases for years, and where there is the closest co-operation of all the services of a hospital—medical, surgical, gynaecological, radio-therapeutic, pathological, physical and laboratory. There must, in addition, be uniform records; and observation shows that the best results cannot be attained unless measures are taken for the ready transportation of poor patients to centres for treatment. Similarly, measures for the

prevention of cancer and the assembling of cases in the earliest stage of treatment in this country are much behind those of certain cities and states of the United States, Great Britain and Europe. In most countries the active treatment centres for cancer are controlled on the scientific side by the universities and financed to a large extent by government; there are extensive and thoroughly organized plans of education financed chiefly by the government and removed from voluntary effort altogether. Another feature serves to make the entire task easier than with us: the people in most of European countries are a homogeneous population; they do not have the large number of nationalities to deal with as found here. In European countries it is the custom to afford transportation for needy cancer patients.

Prevention of Cancer

Nearly all the great advances in medical science have been on the preventive side. From the discovery of vaccination against smallpox in the latter part of the 18th century right up to the present, prevention of disease has achieved greater benefits for mankind than have curative methods. The application of the study of nutrition is exerting a wide effect in the prevention of malnutrition and its consequences, upon obesity, diabetes and nephritis, upon abnormal blood pressure, anaemia, scurvy and rickets. Diseases of the alimentary and respiratory tracts are together accountable for more deaths than diseases affecting all other regions of the body. Here resides a wide opportunity for the practice of preventive medicine.

In midwifery there is the greatest opportunity for wide measures of prevention. Effective ante-natal and post-natal supervision have already accomplished much improvement in this field. The application of antiseptic surgery in midwifery and the reparative surgery following obstetrical injuries are essentially measures of prevention.

The application of bacteriological knowledge paved the way for antiseptic and aseptic surgery. The discovery of Lister is the highest of all preventive measures in disease and Lister well deserves the title of the greatest benefactor of the human race.

Time will not permit to repeat here a detailed account of all the great advances in medicine to the credit of preventive measures, but one may mention the ancient operation of circumcision, the removal of infected tonsils and obstructive adenoids, and the results of a wide variety of orthopaedic measures. While much surgery is curative, one must recognize in surgical intervention in abdominal gynaecological, genito-urinary and dental conditions a wide range of prevention.

It is not possible entirely to prevent cancer, but many of the most important forms, those that cause a high death rate, are dependent upon exciting causes more or less preventable, generally some form of chronic irritation. Chronic irritation of tissues of the body causes death of cells, and death of cells means the decomposition of protein matter, considered by many pathologists as being an element in the

cause of cell proliferation, which is an essential feature of cancer growth.

Cancer does not, as a rule, develop suddenly in previously normal tissues; it begins nearly always in tissues which have been changed by inflammation and disease. The changes that precede cancer are called "precancerous" and more or less time is required for this condition to become cancer. Patient and physician usually have warning of approaching danger. It's a pity that early cancer is usually without pain. If it had the pain of a toothache there would be better opportunity for early diagnosis. The factors that produce cancer are mostly within the patient himself and most of them may readily be seen or felt.

The largest proportion of cancers are found on the surface of the body, in the alimentary canal and in the female organs of generation, all these regions being subject to chronic irritation or injury. Cancers of the lip, tongue, floor of the mouth, inside the cheek and in the throat are incited to grow through the influence of tobacco, bad teeth, and syphilis. Dirty and ragged teeth, pyorrhoea, ill-fitting dental plates, neglect of sores, the use of a clay pipe, and the effects of syphilis—all preventable—are responsible for a wide array of mouth cancer. Tobacco causes "white spot" disease or leucoplakia which may eventuate in cancer long after the cause has been removed. The mouth is about the dirtiest cavity of the body. The use of expensive dentifrices is unnecessary; a mild soapsuds and warm water with a soft brush are much better and cheaper.

Cancer of the skin, developing in plain view of the individual, causes many preventable deaths. These cancers arise from suppressed hair follicles, in persons with oily skins: in the early stages they are readily cured. Hot baths, the use of soap and friction of the skin empty these hair follicles and prevent cancer. Flat persistent warts, sometimes with pigmentation, should be removed before they become cancerous. Scaly and slightly pigmented areas on face or hands developed from exposure to sun and winds are precancerous conditions, which are preventable. Pigmented moles, especially if very dark and hairy, which steadily increase in size and blackness, which tend to become warty, and particularly if exposed to irritation, are dangerous and should be removed, preferably by electro-coagulation. Any changes in an old, brown mole, call for careful attention. Moles on the feet and toes are especially dangerous. Skin cancers are not always preventable. Taken early they are nearly always curable.

The only hope of *cancer of the oesophagus* lies in prevention. If the gullet were not so long and so delicately constructed as to admit of the grateful sensation of swallowing pleasant food and drinks, cancer of this organ would not be so common. The giraffe has a long oesophagus, but he does not have cancer there because he uses simple food and swallows it slowly. Human beings have cancer of the oesophagus largely because they use too hot and imperfectly masticated food, use tobacco and alcohol freely, and fail to keep their mouths clean. These are the lines of prevention in cancer of the oesophagus.

Cancer of the stomach is the most frequent form. About 2 per cent to 5 per cent of these cancers arise from ulcers of the stomach, which are rather rare conditions. There are two types of person prone to have stomach cancer. The one boasts of an athletic stomach, which appears able to digest anything without difficulty; he has never had a sick day in his life. The other is of the sickly sort, whose digestion has always given trouble. Thus it appears that the abuse of a normal stomach frequently gives rise to cancer, while an abnormally weak stomach may suffer the same fate even without abuse. Abuse and over-function probably act as irritants, but no particular article of diet seems to have any special relation to cancer. The dog, who is prone to cancer of other parts of the body, rarely has cancer of the stomach, though he eats much the same food as man. The prevention of cancer of the stomach lies in the avoidance of all forms of abuse of this organ.

Rectal cancer is very common. The large proportion give a history of chronic constipation. Most cases of cancer of the rectum are first mistaken for haemorrhoids, so any sign of piles, denoted by bleeding or other symptoms should create a suspicion of cancer and be thoroughly investigated. Among the victims of rectal cancer, tall persons are said to outnumber short ones.

Man has freer access to unlimited quantities of food and fewer opportunities to empty the bowel than any other animal. He also is the only animal that suffers notably from cancer of the stomach and rectum.

Breast cancer in married women is much more frequent among those who have not nursed their children than in others. While it occurs chiefly after 40 years, it is often found in women between 20 and 30. In mice it has been found that breast cancer can readily be produced by withdrawing the young at birth and allowing the breast to be swollen with retained and decomposing milk. Ligating the ducts on one side of the mouse has led to cancer in four of the six breasts on the ligated side, while no cancers developed on the nurse side. Thus it appears that stagnation of milk and other secretions may be a cause of cancer of the breast. The normal use of the breast is the obvious prevention. The domestic cow is milked and "stripped" every morning and evening and no one ever hears of cancer of the udder of the cow. Diseases of the skin of the breast, infections of the nipple, abscesses, congenital defects and benign tumours all occasionally lead to cancer and should be watched and guarded against. Cancer of the breast is sometimes preceded by a lump and sometimes by bleeding from the nipple. Early attention should be given such conditions.

Cancer of the uterus is the most frequent form of cancer in women and is responsible for 30 per cent to 35 per cent of cancer deaths in the female. Moreover, it is one of the forms of cancer that is increasing in frequency. It is much more frequent in women who have borne children than in those who have not. Uterine tears or lacerations that have not been properly repaired are the common sites of cancer. If all

tears of the uterus were promptly and properly repaired, a great deal of cancer would be prevented.

There is a pernicious belief among women that the change of life is accompanied by bleeding. Abnormal discharge, or any unusual bleeding in a woman after 40 years of age, calls for immediate examination by a competent physician. Very early cancer of the uterus may give no sign and can be recognized only by the most careful examination. It would be greatly worth while if women of 40 years and upwards had a careful physical examination once a year.

Research, Public Health Education, and Co-operation of Physicians

Additional avenues of prevention are research in cancer, education of the public as to its early signs, and co-operation of the medical profession.

The British Empire Cancer Campaign's latest report states that cancer research has made more progress in the last year than in the previous ten years. There are those who assert that more may be expected from research in cancer than from all curative methods combined.

Frank discussion of the early signs of cancer, like the frank public discussion of venereal disease and of tuberculosis may be expected to remove, rather than increase, fear of the disease. To acquaint people of the early signs of cancer and precancerous states and to pave the way for early diagnosis are the chief objects of public health education in connection with the malady.

One of the crying needs in respect of cancer in all countries is early diagnosis. It is lamentable to see patients with cancer of the lip or skin, open to view, and easy to diagnose, coming, in all countries, for treatment in the inoperable stage. *The determining factor in early diagnosis is the family doctor.* In cancer as in all preventable diseases, throughout the entire domain of public health, there has heretofore been almost entire neglect to utilize the services of the general practitioner. This is a grave neglect. Who is in a better position to carry preventive measures to the family than the doctor, who, day by day, enters the people's homes? The early diagnosis of cancer depends chiefly on the family doctor and it will be early or late according to his education, qualities of observation, and professional keenness. In countries like Sweden, for example, the doctor has a seven-years' training including twenty-six lectures and demonstrations in cancer, and circumstance and usage have impelled him to send all cancer cases to the three centres established for treatment purposes.

Excellent facilities for the treatment of cancer are essential to success, but, at the same time, no less essential are the preventive measures, the presence of facilities for research, for education of the public in health, and for the highly trained general practitioner whose keen judgment will discover cancer in its earliest stages and whose close observation will detect it at the moment when it may be prevented.

Prevention of Dementia Praecox and Treatment of the Early Stage*

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IT appears necessary at the outset to admit frankly the limitations under which we labour, due to our imperfect understanding of the causative factors of this disease. Two widely opposed schools have dominated the field, and not until recent years has there been an effort to harmonize the teaching to the advantage of the patient. On the one hand there were those who adhered to a biochemical process as being at the root of the disorder, and on the other hand, those who stressed a gradual distortion of personality through inadequate adjustment during the critical developmental periods of life.

One instinctively shrinks from a fatalistic attitude in dealing with this malady and even from the views of Kraepelin, whose efforts were largely confined to the prevention of an ever deepening dementia and habit deterioration in an already well established psychosis, from which even social recovery was not looked forward to with any great degree of hope. Recovery in our day no longer implies a mistake in diagnosis.

Public health workers will naturally turn with more enthusiasm to some of the more recent authorities who, not neglecting the physical factors at work in the individual case, nevertheless take full cognizance of the environmental influences and instinctive trends which are present throughout infancy, early childhood and the adolescent periods of life. Macfie Campbell has said that it is still possible to emphasize this latter view and give the patient a cathartic.

While awaiting a clearer conception of the cause of the disease, all will agree that treatment of the symptoms in the incipient stages is indicated. The psychiatrist usually sees his cases too far advanced. The pre-psychotic are managed first by parents, school teachers, social workers and the general practitioners whose limited training in psychiatry places them quite at a loss in the face of symptoms. Although our medical schools are giving greater prominence to psychiatry in the curriculum, the importance of the subject is not sufficiently stressed when we realize that two out of every five hospital beds in the Province of Manitoba are occupied by mentally ill persons, a condition which no doubt exists elsewhere in the Dominion. "Only by thorough training will the physician be enabled to recognize at an early stage the serious-

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ness of certain symptoms and feel his responsibility in dealing with them promptly, or of calling in someone more experienced to advise him as to treatment" (Campbell).

What are the early symptoms or danger signals? They are vague and to some may appear trivial. Possibly the patient may show a decrease in energy and in power of application to school work, a sudden change of attitude to parents, brothers or sisters. It has been stated that persistence of mood is the most striking of the early signs. It is abnormal for the early adolescent to maintain for more than a day or so at a time extremes of mood, such as obstinacy, sulkiness, depression, elation and undue self-satisfaction.

Variety of interests should also constitute the weekly if not daily experience of young people. Exclusive absorption in any one line of work or play for longer periods connotes lack of proper development. A certain degree of self-absorption and conceit is natural, but when these traits become so profound as to interfere with normal social intercourse they indicate an impending character change and demand careful consideration and prompt counteractive measures.

Certain patients complain of vague physical discomfort which they find difficult to describe, and right here lies the very grave danger of unconscious retreat from difficulties by hiding behind a screen of ill-defined and numerous physical complaints. The pity is that these symptoms are encouraged by sympathetic but unwise relatives and too often by the untimely advice of physicians.

It is recognized at this point in the development of the case that the number of possible deviations of behaviour from the normal is great. Often the attention of friends is not attracted until grosser symptoms appear. These may take the form of deliberate withdrawal from play or home life, emotional storms, obstinacy to the wishes of friends, even though such behaviour is to the subject's disadvantage. Unwarranted apathy and listlessness when opportunities for enjoyment are available, slovenliness in dress, indifference to the opinions of associates, some overt act in public, all these and a host of symptoms of similar nature are indicative of inadequacy on the part of the individual to meet the demands of his or her particular environment. While the majority of cases manifest these pre-psychotic symptoms at puberty, they may appear much earlier. A recent study by the Child Guidance Clinic of Cleveland shows that of 114 cases studied, 64 were considered not schizoid, 31 doubtful, and 19 manifested definite symptoms warranting the classification of schizoid. The ages of these 19 cases ranged all the way from 9 to 17 years.

Treatment

A child may meet situations in a variety of ways. First, he may conform acceptably to the social requirements; second, he may fight through by aggression or attack; and third, he may seek to retreat from

and escape his difficulties. The third course is considered the most malignant in so far as the individual is concerned.

In the treatment, the physician, after attending to the general hygienic management of the case and having satisfied himself that no organic disease exists, has to study exhaustively the numerous factors which have contributed to the individual's present situation. Have the symptoms developed as a result largely of innate constitutional weakness or as a response to pressure of circumstances? The family history may give a clue to the inherited traits of the child. The character of parents or guardians, as to whether they are faddists, eccentrics or emotionally unstable individuals, will also indicate whether the child has been subjected to harmful emotional influence. If, on the contrary, one finds that the parents have used sound judgment and are considered not to have made life unduly difficult for the patient, the prognosis may be considered more grave. Despite the difficulties encountered, especially in investigating these cases and in arriving at all the facts, a great deal of progress may be made by patience, good will and a sympathetic understanding of human nature, even though one understands little of the scientific technique of psychoanalysis. One must under no circumstances show any sign of surprise at any of the facts confided to him. The loss of self-esteem and depreciation from which a boy suffers, due perhaps to some unconventional conduct, has already served the purpose of estranging him from social contact and his whole outlook may suddenly change when he finds it possible to frankly discuss with his doctor the hidden secret, or fear of which he may be unduly ashamed. The patient must be taught that by looking honestly at the instinctive forces in his nature rather than by putting them out of sight as non-existing, he is not in danger of becoming indifferent to the higher forms of conduct demanded of him. By careful study of the capacity of the individual, the physician may not only be able to deprive these instinctive trends of their pathogenic force, but also to direct the patient's life into useful habits of activity dominated by healthy ideals.

Some may believe it unwise to delve too deeply into symptoms in relation to the sexual instinct. The relief which accompanies a frank discussion in a large number of cases is sufficient indication for such a procedure, despite the unpleasantness of the task.

One important point to be remembered is that the patient's confidence is not to be betrayed in seeking to remove the harmful influences in the family situation. Such a task requires the utmost delicacy and even if the physician clearly sees the mechanism of the symptoms he must first consider the educational level and the capacity of the patient and relatives to assimilate new ideas, in order that he may lay before them just that proportion of his views best calculated to benefit at the time.

Healthy activity must be cultivated in the individual. His future

plans should be investigated, his ambitions studied, and, if they tend toward the impractical or faddist type of occupation with too much interest centred in one line, they should be discouraged and suitably replaced. One of the essentials is an occupation where results are readily obtained and tangible, games and tasks which bring the individual into close touch with other playmates or workers and which require co-operation and bring opportunities for criticism and frank social intercourse. One would not hesitate to recommend to a young man or woman the variety of healthy activities to be enjoyed by affiliation with a Young Men's or Women's Christian Association.

One or two features of our present day social life bear mention in regard to the influence they may possibly have in preventing mental conflicts during the adolescent period. These are, first, the saner treatment of sex problems; second, more healthy ways of self-expression for the idealistic individual; third, the present day tendency to push children who are inclined to reticence; and fourth, better physical hygiene and the manifest reduction of the infectious disease rate. Only time will prove whether these factors are of great importance or not.

What has been said in the foregoing remarks is equally applicable in dealing with the early stage of a well defined schizophrenia. Dr. Hoskins of the Worcester State Hospital, Mass., has given some valuable suggestions recently. There is nothing particularly new. All mental hospitals are striving to carry out these ideas. The method of preventing them and passing them on to nurses and attendants is, however, most refreshing. Efforts are largely directed to increase the patient's self-respect; constant friendly pressure to maintain personal cleanliness is necessary, as are attractive clothing wherever the situation permits, living quarters as comfortable, homelike and attractive as possible, respectful treatment by any and all who have anything to do with the patient; participation in community life, and, if in hospital, in institutional affairs such as entertainments and social gatherings. Self-esteem may be developed by placing confidence in a patient by giving him responsibility, parole, and approbation for acts of useful service and tasks accomplished. Organized sport with competition between groups is one of the best ways of drawing the patient out and preserving him from deterioration. The practice of well timed, early discharge should be encouraged.

Realizing the difficulties and discouragement encountered in treating cases of schizophrenia, one nevertheless feels that there is ample room for the belief that the process may be arrested at any stage and every effort should be exerted to this end.

Pitfalls in the Diagnosis of Early Syphilis*

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IN no branch of the practice of medicine is prompt and accurate diagnosis of more vital importance than in the department of syphilology. This paper is presented, therefore, not to advance anything new or original, but, simply by re-telling an old story, perhaps in slightly different form, and by citing some actual cases which have come to my attention, to stimulate in the profession a keener interest in syphilis, and to emphasize the necessity, both from the standpoint of public health and the standpoint of the patient, for making a diagnosis in the most expeditious manner possible.

Promptness in diagnosis, especially in early syphilis, is essential, for it is only in the early stage of syphilis that we can give the patient even a fairly good hope of "cure." If the patient is treated in the primary or early sero-negative stage, he has about 35 per cent greater chance of permanent "clinical arrest" as Stokes expresses it, or "cure," which is more easily understood, than if we wait until his blood shows a positive Wassermann reaction.

In my few years of experience in dealing with luetic patients, both in clinic and private practice, it would seem to me that the most frequent pitfall is in the tardy recognition of the primary or first lesion of syphilis. In earlier days the Hunterian chancre with its clean punched-out appearance, indurated base, absence of pain and so on, was taught and demonstrated as the typical primary sore. True, that is the typical sore; but unless we get firmly fixed in our minds that early lesions not resembling in the least this text-book picture can and do harbour the *Spirochaeta pallida*, we will miss a very high percentage of primary sores; and we will allow our patient to pass on into the later stages of the disease when "cure" becomes increasingly uncertain.

ERRORS IN THE DIAGNOSIS OF THE PRIMARY LESION

In genital sores

The first point to be stressed is that every sore on the genitals, no matter how small or innocent looking, or dirty or sloughy looking, should be considered to be syphilitic until it is conclusively proven otherwise. What would appear to be the simplest scratch, or a scabetic burrow, a small patch of herpes, the shallow ulcer of a Vincent's infection or the huge purulent painful ulcerating erosion of a soft sore, has in many instances yielded the spirochete on dark field examination.

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And one must stress the fact, too, that the dark field examination is the only method at our disposal at present which will quickly make a diagnosis. It should be tried in every genital sore and, if necessary, repeated two or three times. *Never omit the examination of the sore and wait several weeks as one probably would have to, in order to make a decision from a positive blood Wassermann.* Methods other than the dark field method can be used, such as the India ink stain, Leishman's stain or the methods whereby the spirochete is stained with a silver solution. In these, however, we lose the evidence which is very important in making certain of the organism, namely, the character of the movements of the spirochete as seen in the living state. For this reason, the dark field method is to be preferred.

During the past six months twenty-nine cases with genital sores have reported to our Clinic. Some had already consulted their own private physicians. Of these cases, eight had been considered most carelessly. It was taken for granted that the sore was non-specific and antiseptic ointment or some other antiseptic was applied for two weeks or more until either a rash appeared or the blood Wassermann became positive or other signs developed which definitely established the progression of the disease to a later stage. In this way one out of every three cases was insufficiently examined.

Here are a few examples of such mistakes:

(1) A man reported to his physician with a genital sore present for three weeks. He was given medicine by mouth. Three weeks later he came to the clinic where the sore was diagnosed as specific. At this time his blood was found to be very strongly positive. He was advised to use moist antiseptic compresses. This treatment was continued for four weeks when the blood Wassermann was found to be very strongly positive.

(2) A man consulted his doctor for a penile sore present only a day or two. He visited that doctor's office twice each day for the next month to have that sore painted with mercurochrome. At the end of that period the man had an extensive secondary rash and, of course, a strongly positive Wassermann. At each visit this man was reminded by the doctor how fortunate he was that this sore was not syphilitic.

(3) One month ago a girl of twenty years came to the clinic in company with one of our female patients. In a casual way she mentioned to the clinician that she had a small genital sore. He urged her to have it examined but she promised to consult her own physician in regard to it. To-day, that girl was referred back to us, showing all the signs, rash, sore throat and positive blood Wassermann of a secondary syphilitic. She was well satisfied with her doctor's services. He had given her a bottle of medicine which "quickly took the sore away," and had been content to do blood tests until her blood told the tragic story.

It is not my intention to attribute all these mistakes to the physician in general practice, for, we are sorry to say, we see errors in diagnosis being made even in our own hospital, as shown by the following:

"L. H." came to the out-door department on July 1st, 1925, with a discharge and a sore. The discharge was gonorrhoeal and the sore was taken for granted to be a chancroid and so treated; no dark field was done. On July

15th a Wassermann was done and no definite result given but a second test was requested. On July 29th this repeat test was returned very strongly positive and the man had the usual secondary rash—the *most valuable month in the treatment of any syphilitic gone forever*. Anti-luetic treatment was begun at once. In October, 1925, the same year, his spinal fluid was positive and he had clinical signs of cerebro-spinal syphilis. At present, more than six years later, he is still serologically positive both in blood and spinal fluid in spite of consistent and careful treatment.

"O. J." came to out-door department clinic on February 11th, 1924, with a sore and a discharge. No dark field was done; Wassermann test was negative. On March 7th, 1924, he had a generalized secondary rash and blood was then very strongly positive. Eleven months later his spinal fluid was positive. However, in this case, after continuous treatment for three years both blood and spinal fluid were reported negative and up to the present this man is apparently a "cure."

These cases all illustrate the tragedy of slow diagnosis from the patient's point of view. The following case brings to our attention the public health side of this question of mistaken diagnosis:

"S. M." came to the Clinic just a week ago having been referred from the Nose and Throat Clinic. He had a severe ulceration of his left tonsil which extended up on to his soft palate. He had a generalized rash. He also had the marks of healed sores on his penis from one of which we obtained serum in which we found the *Spirochaeta pallida*. This man had first noticed these sores about September, 1931, six months ago. He went to his doctor who took a blood test and cauterized the sores. When the report on the blood was returned negative, the doctor assured the man that he had no cause for further worry. Since that time this man admitted exposure to approximately twenty women in almost as many places in and around Toronto. What far-reaching consequences that diagnostic error may have, none can even guess.

Some less typical genital sores might be worthy of mention. Recently I saw a man who had been having urethral irrigations for ten days for what was considered to be a non-specific urethritis. He showed a small indurated area just inside the meatus in which the spirochete was found on dark field examination. Cases are not uncommon where a man presents himself with a thin muco-purulent discharge from which you fail to isolate the gonococcus. The possibility of an intra-urethral chancre should be borne in mind, the terminal inch of the urethra carefully palpated for evidence of an indurated area and the edges of the meatus everted to see if there is any sign of ulceration.

In gonorrhoeal complications

Syphilis is sometimes masked by a true gonorrhoea. One has seen an example of this in a man who had a long prepuce and who, a week or ten days after the discharge began, developed marked swelling of the prepuce. One should always suspect the presence of a syphilitic sore in such a case, and its presence can be proven by dark field examination of the discharge. I think it most important that all cases of gonorrhoea, male or female, should have Wassermann tests done at the beginning of their treatment and at least once a month thereafter for three or four months; for even in men, the early signs may be so inconspicuous as to be missed entirely and it has been said that 20 per cent of male syphilitics miss these early signs.

In genital lesions (female)

So much for more or less typical genital sores in men which are being missed. Recently we have had two examples of genital sores in women which had been considered to be Bartholinian abscesses. No doubt these mistakes were made on account of insufficient examination, for on careful observation of the swollen labia, the masses were not as tender as the ordinary pyogenic infection; there was absolutely no evidence of fluctuation, although the masses had been there for a week or more, and there was a small ulcerating area concealed on the inner side of each labium from which serum was obtained and the spirochete identified. One must not forget that the primary sore in a woman may be on the wall of the vagina or on the end of the cervix uteri and careful search should be made in these locations if such a lesion is suspected. Lakaye, of Liege, Belgium, has investigated the prevalence of chancre of the vagina and concludes that it constitutes about 9 per cent of genital sores in women.

In female luetic patients who have reached the latent stage of the disease, it is a striking thing to note the large percentage who give negative history of early signs. Some authorities say that in sixty per cent of women, the primary and secondary signs are of so mild and insignificant a character that the victim misses them entirely. From my own observations, my estimate would be about forty per cent.

As a case illustrating this absence of primary signs in women, let me detail a private case which I saw some years ago.

"A. F." came to me and was found to be suffering from gonorrhoea. Her blood Wassermann was negative. Twice each week for the next five weeks I treated her locally for gonorrhoea, thereby having a perfect opportunity to see any evidence of a lesion either on external genitalia, on the walls of the vagina or on the cervix uteri. At the end of that five weeks she came in one day and complained of swelling of the glands of her neck. This was accompanied, I found, by fairly general glandular enlargement and then her blood Wassermann was found to be very strongly positive.

In extra-genital lesions

So far we have been considering genital lesions; let me now refer to extra-genital chancres. These lesions, of course, may occur on any part of the body. I can remember one case where the sore was thought to be Paget's disease of the nipple. This indurated painless lump had been present for five weeks, also there was some axillary adenitis. Dark field examination was not made but the blood Wassermann was very strongly positive and anti-luetic treatment rapidly caused the mass to disappear and the patient was ultimately apparently "cured." Another unusual location for a primary sore which I have seen was on the back of the thigh. This sore was proven by dark field examination. More usual locations are, of course, the fingers, the lips, the tongue or the cheek. In such locations any sore lasting as long as ten days and showing any degree of induration together with involvement

of adjacent lymph glands should arouse suspicion and a determined attempt should be made to rule out syphilis. It is only by having the possibility of syphilis in mind when dealing with such a sore that one will escape such a mistake as is illustrated by the following example:

"W. L." came to the Surgical Clinic with a painless, indurated area on lower lip of three weeks' duration on June 28, 1922. An incision was made into it but no pus found. Two weeks later when routine daily dressings had not produced any improvement, a blood Wassermann was done and found to be very strongly positive.

"Not such a bad mistake," you may say; but *those first few days of a syphilitic infection present the golden opportunity for successful therapy.*

Of course it must be admitted that diagnostic and therapeutic mistakes are unavoidable, but when we consider that such mistakes, when applied to syphilis, constitute not only a grave public health problem, but possibly tragedy in so far as the future well being of the patient is concerned, we must accept our responsibility as diagnosticians most seriously.

In congenital syphilis

One more pitfall: that of the unborn child of a syphilitic mother. I feel that a most essential part of the examination of every pregnant woman is a blood Wassermann. There is very little doubt but that, by this simple precaution, congenital syphilis could be made a very rare disease, for seldom is a syphilitic baby born to a non-syphilitic mother; and should the mother be found to have syphilis, she can be given the chance of almost surely having a non-syphilitic child if she is treated early enough and thoroughly enough during her pregnancy.

As an example of the importance of this examination let me tell the story of a little family now under the care of our clinic.

Twenty-one years ago a young man and a young woman married. About a year later when the young wife was about six months pregnant she complained to her doctor of genital soreness. She was advised to use warm douches. In due course her baby was born: a baby girl. Two years later a second baby girl came along. Both children were apparently healthy. Eighteen years passed by and one of these girls, "H. C.," was brought to the Eye Clinic—one eye blind, six-ninths vision in the other eye. Syphilis was not suspected and local treatment only was applied. Sixteen months passed before it was realized and discovered that this girl, now totally blind, was suffering from congenital syphilis. In looking up contacts of this case, it was found that the other girl, "V. C.," also had congenital syphilis and in her case the disease was already showing itself in another of its many deadly forms. She was rapidly becoming a mental defective. Treatment at this late date in either of these girls, you will agree is a hopeless business, but both girls together with their mother and father are being treated.

One must admit that there was considerable excuse for a physician in 1912 neglecting to suspect syphilis in that young mother but I cannot agree that there is any excuse for the modern physician of 1932 failing to suspect and to use every means at his disposal to prove or disprove the presence or absence of syphilis in any obscure or unusual case before him.

Tastes and Odors in Public Water Supplies

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IN the treatment and purification of public water supplies, among the greatest problems encountered is the prevention of taste and odor. While the taste and smell senses are closely related, they are nevertheless quite distinct. Whipple has pointed out that many of the so-called tastes are really odors, the gas or vapor given off by the substance tasted reaching the nose not only through the nostrils but also through the posterior nares. Consequently an odor tasted is often worse than an odor smelled.

Apart from the odors liberated by certain gases such as hydrogen sulphide, occasionally present in well waters and easily removed by aeration, most of the objectionable conditions commonly encountered are due to organic matter either in solution or suspension, to microscopic organisms, to excess chlorine, to the action of chlorine on disintegrated organisms or to the formation of substitution compounds due to the action of chlorine on certain industrial trade wastes, present as a pollution in the water. Iron, when present in a soluble form in amounts in excess of 2 parts per million, may give rise to a characteristic ferruginous taste. For the prevention of this, the water must be aerated and treated chemically for removal of the iron.

The causes of taste and odor can often be rapidly diagnosed by an experienced observer. Descriptions of taste—which hereafter includes both taste and odor—resulting from the decomposition of organic matter, are very varied, being described as musty, earthy, and mouldy. They are greatly influenced by the temperature of the water and the dissolved oxygen content. Where they do not produce phenoloid bodies, aeration is the simplest means for improving the quality of the water. Tastes caused by the excessive growth of living organisms are distinctive in character. Microscopical examination of the water will usually show the type of organism responsible for the trouble. Taste may be caused by either the presence of large numbers of organisms or by their decomposition. Several types of organisms contain oil globules which freely liberate oily compounds on undergoing decomposition. The resultant of the latter is particularly difficult to remove. The varieties of taste commonly associated with living organisms are described as being aromatic, fishy, earthy, oily or grassy, while other

forms less frequently encountered may cause particularly offensive tastes which are sometimes described as resembling the odor of a pig pen. Time does not permit naming and describing even the more important offending organisms.

Another source of taste is that following the use of chlorine for sterilization or some treatment process. Chlorine in water rarely tastes, unless present in excessive quantities. It has a characteristic odor easily discernible, but rapidly disappears upon exposure to the atmosphere. In the presence of certain trade wastes chiefly phenolic in character, chlorine reacts with, and forms substitution compounds of a particularly offensive nature. This taste is frequently described as being medicated, chemical or resembling iodoform and is fairly common in the water supplies of large cities. The trade wastes are chiefly derived from oil refineries containing aromatic polyhydric phenols and from coke ovens and gas works. Decomposing organic matter may also form phenoloid-like substances which react in the presence of chlorine. In England, Adams has shown that atmospheric phenol may also react with chlorinated water and that certain types of trees, plants and leaves can liberate taste-forming substances resembling iodoform. In 1922, the writer presented the earliest detailed figures as to the amount of phenol which causes taste in chlorinated water, and in recent years it has been shown that taste can result in chlorinated water from phenols, when this substance is present in amounts as low as 1 part per billion. The city of Toronto has made several years' study of taste causation, and valuable contributions to the literature have resulted. In 1926, Howard and Thompson completed an examination of some 23 substances derived from the destructive distillation of coal, and were able to show that the taste-forming compounds were confined to the mono-substitution group which included phenol, ortho-, meta-, and para-cresol, xylene and anisole.

Tastes Associated with Chlorination

Generally speaking, the chlor-phenol tastes occurring in water are distinctive in character. Under certain conditions, however, they are sometimes found to resemble types of taste having an entirely different origin; as, for example, the phenoloid bodies resulting from organic decomposition, which closely resemble the true phenols occurring as a pollution in the water. Both of these react in a similar manner in the presence of chlorine. In well waters and supplies of high organic purity, which subsequent to chlorination develop a medicated taste, the cause is somewhat obscure and may be due to the presence of certain mineral salts which react with chlorine. Such supplies fortunately give readily to suitable treatment.

By far the most serious tastes occurring in chlorinated waters are those resulting from trade waste pollution. As previously mentioned, they are said to resemble a medicated taste, and remain unchanged

after boiling. Consequently not only is water affected but also tea, canned goods and food which may be cooked in such water. The action on tea is pronounced, and for laboratory tasting purposes it is not unusual to test tea infusions to determine the intensity of taste, particularly in the winter months when the water is very cold.

Tastes Caused by Organisms

The treatment for the prevention of taste caused by microscopic organisms, sometimes known as plankton life, is extensive, and at times uncertain. The organisms must be given physical or chemical treatment at their source so as either to prevent their growth, deprive them of their food supply or destroy them by chemical means. Waters deficient in oxygen, high in organic matter and having poor circulation are most liable to develop excessive growths. Improvement of the water by circulation or aeration followed by chemical treatment, will usually aid considerably in restricting or eliminating growth. Aeration alone will dissipate a deal of the tastes and odors, but of course will have little effect on growth. Copper sulphate has been used extensively as an algicide with considerable success. This method of treatment can be used successfully only in reservoirs and storage basins where retention is available. The amount of copper necessary to get results varies enormously according to the quality of the water and the type of organism present, and, inasmuch as copper is very toxic to fish life, great care must be taken in its application, which should always be under skilled supervision. When applied in heavy doses, chlorine has also been found effective, not only in destroying certain growths, but also in preventing taste, the excess chlorine either oxidizing or reacting with taste-forming substances to form odorless compounds. On the other hand, small doses of chlorine have little effect and may intensify taste and odor. Application of permanganate of potash has been successfully reported upon for the prevention of tastes, the origin of which has been associated with microorganisms. Within the past two years considerable success has also been reported in the use of the ammonia-chlorine combination. Details of this treatment are described later. It should be pointed out that so far as is known, there is no cure-all treatment for this type of taste, the origin of which must first be determined and then the treatment worked out.

TREATMENT TO PREVENT OR REMOVE TASTES

Present day treatment is practically confined to either super-chlorination followed by dechlorination or the more recently adopted ammonia-chlorine process. The former is more costly than the latter but, in some types of heavily polluted water, has certain advantages. Considerable research work is also being carried out on the use of activated carbon which has remarkable adsorptive properties regardless of the type of taste involved. At the present time the economic

aspect of installation, adaptability to existing lay-outs and life of active properties of the carbon are the chief considerations.

Regardless of the system of taste prevention which may be used, such a system must be regarded only as a temporary measure adopted until the polluting conditions are abated or until some better method of treatment is developed.

Superchlorination Treatment

The superchlorination treatment consists of greatly increasing the chlorine above the normal dosage, which prevents the formation of substitution compounds, then giving a suitable contact period and removing the excess chlorine by sulphur dioxide, sodium bisulphite or some other dechlorinating agent applied in exact chemical proportion. Brief reference should be made to the chemical reactions involved in this treatment. When sulphur dioxide is dissolved in water, sulphurous acid is formed and in the presence of chlorine is oxidized to sulphuric acid, the chlorine combining with the hydrogen of the water molecule involved in the reaction to form hydrochloric acid as expressed in following formula: $\text{H}_2\text{O} + \text{Cl}_2 + \text{H}_2\text{SO}_3 = 2\text{HCl} + \text{H}_2\text{SO}_4$. Both the chlorine and the sulphur dioxide are thus converted into the corresponding acids, which combine with the normal alkalinity of the water, resulting in a slight increase in the non-carbonate hardness and a corresponding decrease in the carbonate hardness. The research work carried out in Toronto, and confirmed by practical operation, showed that the success of this treatment was entirely dependent upon a definite chlorine dosage and a pre-determined contact period, which in the case of polluted waters should never be less than one hour. Faulty operation may greatly intensify taste and for this reason laboratory control is essential. In all cases, the minimum amount of chlorine required and the contact period necessary must be determined by experiment. In Toronto, the chlorine during special treatment periods is raised from 3.5 to a maximum of 24 lbs. per million gallons of water. Before entering the distribution system this chlorine is entirely removed. The bacterial standard of purity aimed at in Toronto is a negative *B. coli* test in 100 cubic centimeters. This standard is consistently maintained. In heavily polluted waters having high chlorine absorptive properties, the superchlorination treatment offers an additional factor of safety.

Chloramine Treatment

The other method of treatment consists of the addition of ammonia to water prior to the application of chlorine and results in the formation of chloramines. Either mono-chloramine ($\text{HOCl} + \text{NH}_3 = \text{NH}_2\text{Cl} + \text{H}_2\text{O}$) or di-chloramine ($2\text{HOCl} + \text{NH}_3 = \text{NHC}_2 + 2\text{H}_2\text{O}$) may be formed, according to the ratio of the reagents added and the pH of the water involved. In this treatment, ammonia combines with the chlorine,

lowering the chlorine oxidation potential and thus preventing the formation of taste-forming substances. During the past two years the chloramine treatment has made rapid strides; but, before adoption, it, like all other methods of treatment, must first be demonstrated to prove its effectiveness. Either anhydrous ammonia or any of the ammonium salts can be employed. The ratio of ammonia as NH_3 to chlorine for practical application must be demonstrated separately on each source of supply. In unfiltered water and water subject to heavy organic pollution, more ammonia is necessary than is the case in normal filtered supplies. The usual ratio by weight is from 2-4 pounds of chlorine to 1 pound of ammonia, but in some waters the ratio may be reversed and be 3 parts of ammonia to 1 of chlorine for each million gallons of water treated. With increasing amounts of added ammonia, taste may be more easily overcome, but the sterilization of the water will be greatly delayed. This factor should always be seriously considered if water is discharging into nearby mains shortly after treatment. The chemicals involved in these processes, including chlorine, sulphur dioxide and anhydrous ammonia, can all be applied in gaseous solutions through standardized machines built for this purpose.

In certain waters secondary tastes of a musty or earthy character may occur and are at times quite objectionable. Neither superchlorination nor pre-ammoniation treatment has been shown to prevent these tastes and the use of activated carbon has been suggested. The work of Baylis in Chicago has clearly shown that this substance is able to remove either chlorine or chlorophenolic tastes; consequently he has suggested that superchlorination treatment followed by filtration through activated carbon is the most logical and satisfactory method of treatment. In the near future the use of activated carbon promises to be extensively developed. The treatment of waters polluted with phenoloid substances requires a deal of investigation before a satisfactory method of treatment can be formulated. Both superchlorination and pre-ammoniation have been found uncertain in some supplies.

The Trachoma Problem*

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TRACHOMA has been a subject of rather remote interest for most Canadians. The disease is associated with a few localities only and for the most part the Dominion has been regarded as practically trachoma-free. The laity are often ignorant of even the name, and the medical profession itself, excepting the few especially concerned with eye disease, has regarded the subject with a degree of apathy.

At one time I spent several years in practice in the chief focus of trachoma in this country and have retained connection with the district ever since, a period in all of over thirty years. This experience has left me deeply impressed with the serious character of the disease, with the relentlessness of its spread and the tremendous difficulty of its eradication.

It is the purpose of this paper to present in particular these aspects of the disease.

As the causative agent of trachoma is still a matter of discussion, a satisfactory definition at this time, must include its essential clinical characteristics. Trachoma maybe thus defined as a chronic granular disease of the conjunctiva, capable of extending to the cornea and giving rise to cicatricial changes.

HISTORY

References to a disease of the eyes which corresponds with the foregoing definition are contained in Egyptian records of about 3000 B.C. From this region, which has ever since remained the chief focus, the disease seems to have followed the lines of trade and the paths of invading armies, along the Mediterranean littoral. Herodotus and Plato complained about the importation and spread of ophthalmia by foreigners. Hippocrates described the disease and advised treatment. The armies of Rome appear to have been widely infected, and eminent citizens like Cicero, Horace and Pliny the Younger probably suffered from the disease. While much confusion in diagnosis no doubt existed in ancient times between trachoma and other forms of conjunctivitis, and persisted through the middle ages, the records of the early spread of trachoma are generally accepted.

DISTRIBUTION

Trachoma infection is now practically world-wide. The degree of incidence varies in the different countries, as shown by the accompanying map. This has been redrawn from one compiled by Dr. Wibaut of Amsterdam from official reports to the International Committee for the Investigation of Trachoma and supplemented by information from other sources. Experience has shown that statistics of the incidence of trachoma may be misleading unless

*Read before the Winnipeg Medical Society, January 15, 1932.

they are subjected to some revision. The usual sources of such estimates and their comparative reliability, according to Wibaut, are as follows:

Compulsory notification. This always results in underestimates which at times show no more than ten per cent of the actual total.

Examination of school children and military recruits. This is exact in proportion to the skill and thoroughness of the examination. Re-examination by oculists has uncovered two and one-half times as many cases as examination by practitioners without experience.

Examination of representative samples of the population. This gives figures that are usually much too high.

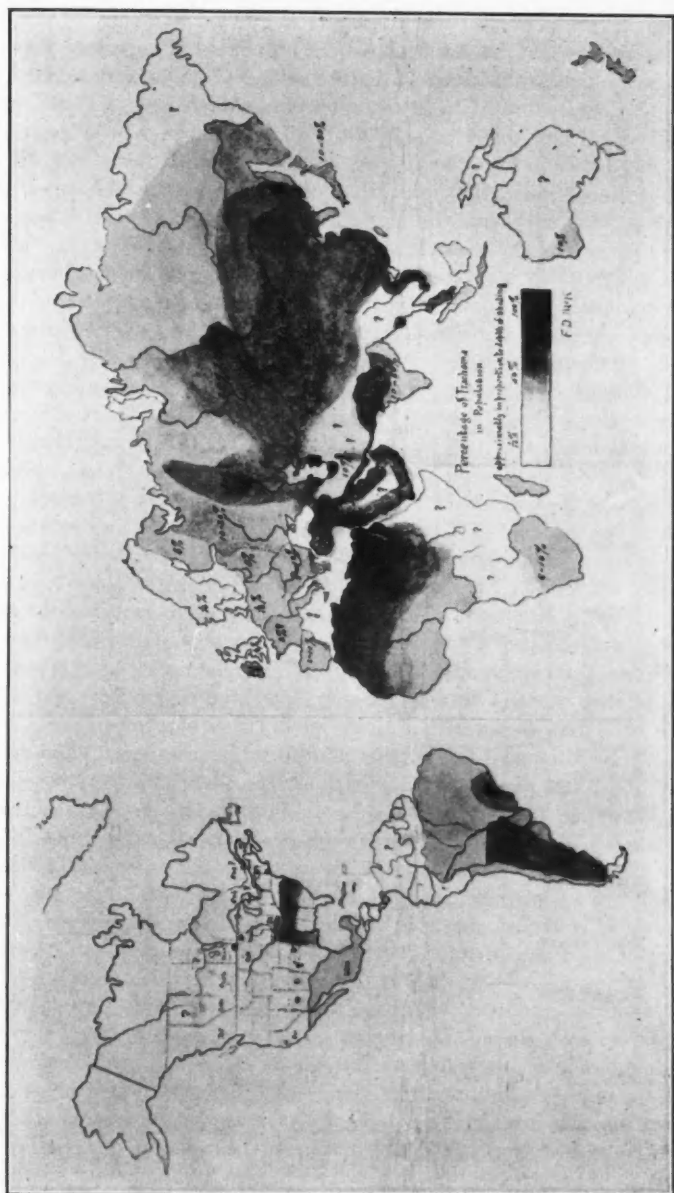
The proportion of trachoma in eye clinics. This varies greatly with the time and conditions; on the average, the incidence of trachoma in the general population may be taken as about one-third its incidence in the eye clinics.

The relative frequency of trachoma as a cause of blindness. This is of little value with present methods of registration.

General estimates, by those qualified and acquainted with local conditions. This can give a rough approximation only.

The percentage incidence shown on the map has been subject to the above revision and is indicated approximately by the depth of shading. It needs only a brief inspection to see that trachoma is now practically a universal disease. All countries and races are affected in some degree, with the possible exception of the Eskimo. Great Britain and the Scandinavian countries are almost free. The proportion increases markedly through central and eastern Europe, reaching its highest in Egypt and the adjacent regions of Asia and North Africa where nearly one hundred per cent of the population are affected. Throughout Asia, especially in China, one-half or more of the inhabitants suffer from trachoma. These regions contain three-fourths of the world population. There is some evidence to suggest that these estimates may be too conservative; for instance, the French report of 1926 recorded 67 cases of trachoma for all France, whereas in the same year in Aubaret's clinic in Marseilles, 387 cases were under treatment (Grosz). Reports differ considerably in their estimates and the present figures are not to be regarded as final.

In the new world, especially South America, such reports as are available indicate that trachoma is fairly widespread and in certain regions seriously prevalent. In the United States the disease is well established. The distribution is variable but there is a high incidence in some densely populated regions. The Virginias, Kentucky, Tennessee, Southern Illinois, Missouri, Arkansas and Oklahoma have an estimated percentage incidence of from 8 to 12. Hospital eye clinics in Knoxville, Tenn., Richmond, Va., Rolla, Mo., and Russellville, Ark., report an average of 39 per cent trachoma. This would indicate about 13 per cent in the tributary population. The backward inhabitants of the Appalachian and Ozark mountains are the white people most affected. Surveys have shown over 6 per cent trachoma in the schools of Imperial county, California. The Bureau of Hygiene registered over ten thousand cases in New York City in 1908; this is almost as many as have been reported in Hungary, a country which is considered seriously infected. Among the Indians of the United States the general average of infection is said to be about 10 per cent and in some tribes almost 30 per cent. An observation of significance has been reported by Dr. Taliaferro Clark: between 1913 and 1923 the proportion of Indian children attending public schools near the reserves in Minnesota had increased threefold and there had been a corresponding increase in trachoma among the white children.



WORLD DISTRIBUTION OF TRACHOMA.

Distribution in Canada

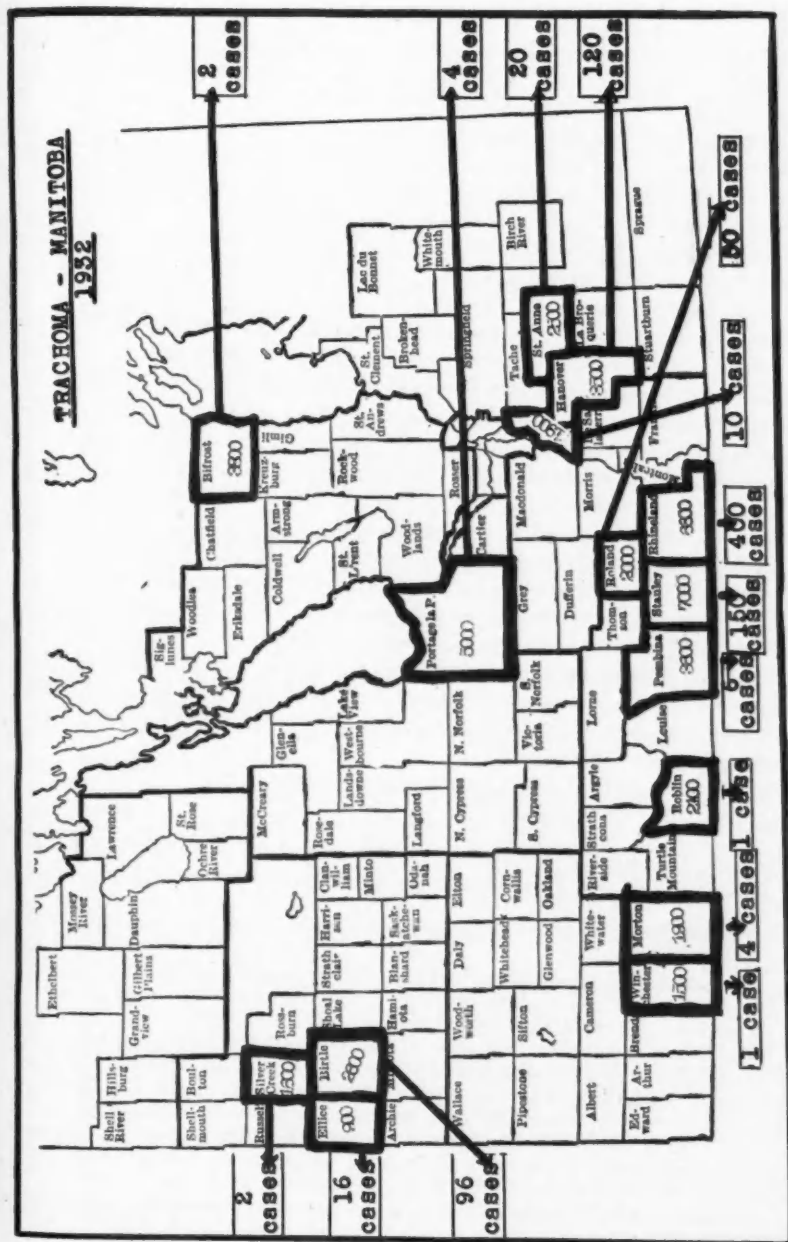
In Canada the prevalence of trachoma is not yet a matter of statistics, except in a few areas in the middle West. Throughout the country in general, the disease is uncommon and in native white Canadians decidedly rare. Regina and Calgary hospitals report a few cases each year. The Kingston General Hospital had three cases in 1931, all in Chinese. In Winnipeg, the Misericordia Hospital reports 10 per cent trachoma among eye diseases. In the Montreal clinics the proportion of trachoma has been reported as 3.6 per cent (Foucher), but the statistics of the larger general hospitals in Montreal, Toronto and Vancouver appear to be inaccessible.

The Canadian National Institute for the Blind reports trachoma-blind in all the provinces of Canada except Prince Edward Island. The method of certification, however, renders the report of little value as a measure of the prevalence of the disease.

The Dominion Government and some of the provincial governments have the subject under investigation but exact figures as to the incidence of trachoma throughout Canada are not yet available. Dr. E. L. Stone, Director of Medical Services of the Indian Department reports much trachoma among the Indians, and the Department is now engaged with measures of control.

For such information as I have been able to gather concerning the more northern Indians and Eskimos, I am indebted to Dr. Joseph Heinbecker of Washington University, St. Louis, to Dr. N. H. Bowers of New York City, and to Mr. Louis Romanet of Edmonton. They were consistently of the opinion that the Eskimo of northern Hudson's Bay coast and Baffin Land are practically free from trachoma. This agrees with the report of Professor von Groenholm, that there is no trachoma in Greenland or among the Eskimo.

It has been long recognized that the main focus of trachoma in Canada is the district of Rhineland in southern Manitoba. This district has a population of about 6,600 people, mainly Mennonites who came to this country from Russia. The Ministry of Health of Manitoba undertook a survey of this district in 1930. The survey was carried out by specially trained nurses and later checked by re-examination by oculists. The results up to the present indicate a degree of trachoma infection approaching 10 per cent of the population and it is probable that much remains to be uncovered. Such a percentage of trachoma infection is quite high, even in comparison with eastern Europe. The people of this district brought trachoma with them when they came to Manitoba over fifty years ago and it has been endemic in that part of the province ever since. The region of Bessarabia from which they emigrated was about 5 per cent trachomatous twenty-five years ago (Selenkowsky). It would appear, therefore, that trachoma in this part of Manitoba has not only shown an absolute increase with the increase in population, but that the intensity of infection has doubled during their period of settlement in this country. At the time of the influx of settlers to Saskatchewan twenty-five years ago, there was a considerable migration of people from Rhineland to the country about Rosthern, Herbert and Rush Lake. These points of settlement have been found foci of trachoma in that province.



DISTRIBUTION OF TRACHOMA IN MANITOBA, 1932.
(Population figures are printed under the name of each municipality having cases).

INFLUENCES OF ENVIRONMENT

Within many foreign settlements in western Canada there exist certain conditions of environment that influence the spread of infectious disease, namely:

Defective water supply. Many houses have no cellars and, therefore, no cisterns. Water for washing is obtained from rain barrels or melted ice, or from wells of which the water is often hard and unfit for use with soap. Ordinary cleanliness is difficult; a common towel the rule.

Overcrowding. This is not infrequent. Large families with many young children prevail, and instances of two or more generations in one house are not uncommon.

Tendency to self-sufficiency, resistance to outside influence and suspicion of new ideas. These characteristics, when combined with primitive ideas of infection and hygiene, add immeasurably to the difficulties of prophylaxis. In the case of Rhineland, the above factors have evidently had a double influence: while favouring the spread of disease within the district, they have, at the same time, tended automatically to confine it within the boundaries. The post-war years have produced changes in this community which have resulted in some dispersion of its members over the province. This is especially the case with the younger members of both sexes. The girls frequently enter domestic service as maids or nurses thus coming in close contact with young children. The boys often engage with harvest gangs, thus exposing the other members to the menace of the common towel. These, with immigrants from other Eastern European countries, Poland, Hungary and the Ukraine, are responsible for the scattered outbreaks of trachoma which are being revealed by the present survey. This serious dissemination is indicated on the accompanying map of the Province.

ETIOLOGY

The infectious nature of trachoma is obvious but the causative agent has been difficult to isolate. Four main steps have marked the train of investigation:

1. The study of accidental personal infections, by Quaglino, Cuignet, Manz and Horner.

2. The successful experimental inoculation of human beings, by Sattler and Addario in 1906, Miyashita in 1908, Cuenod and Blaizot and others. This showed the period of incubation to be 4 to 10 days.

3. The successful inoculation and transmission of trachoma in monkeys, by Hess and Romer in 1906 and later by Nicolle, Cuenod and Blaizot. Some conclusions of the latter are of interest: (a) the onset of trachoma is insidious, "without inflammatory reaction and without secretion." (b) "A diluted virus, or the tears alone, are sufficient to provoke infection." (c) "The virus survives in glycerin for seven days at freezing temperature. It is destroyed by drying for half an hour at 32 degrees C."

4. The isolation by Hideyo Noguchi, of a micro-organism which he named the Bact. granulosis. Noguchi's investigation was based on the work of his predecessors. It was carried out in 1927 with trachoma virus and tissue obtained from the Indians in New Mexico, which, "according to clinical and

pathological studies, is to be classed with trachoma as observed in other parts of the world (H. N.).” It is noteworthy that only old cases of trachoma with cicatricial were used. The method consisted of systematic culturing and inoculation of monkeys with the organisms found. This led eventually to the isolation of a micro-organism which, “when inoculated in pure culture on the conjunctiva of the ape, produces a form of persistent granular conjunctivitis, closely resembling and apparently identical with trachomatous granular conjunctivitis in man (H. N.).”

The Bact. granulosis conforms with Koch's postulates and was in its fifth series at the time of Noguchi's report.

Direct infection is the essential factor in the spread of trachoma. This important fact has been sometimes obscured by the great emphasis placed upon poverty and dirt in the etiology. Important as these latter factors undoubtedly are, they are not essential to the propagation of the disease.

How and when does infection with trachoma occur?

The clearest answers to these questions are found in the conclusions of Professor Sosuke Miyashita of Tokio, drawn from his extensive experience as Director of the Japanese survey in which nearly forty millions of the population have been examined.

(a) Trachoma begins in the nursing period. The frequency shows a marked increase in the age period from five to ten years. The maximum occurs in the eighth year. It decreases during middle age and again reaches a climax at from fifty to fifty-five.

(b) Trachoma infection sets in mainly sometime in the first twenty years; among eye diseases it is most often encountered at the age period from fifteen to twenty years.

(c) The severe and complicated type increases in frequency constantly with the age.

(d) The female sex is always most affected by trachoma—in frequency, severity and complications. In this it corresponds to tuberculosis.

(e) The chief source of infection is the mother; she infects her children in nursing. The next most frequent source is from small children either within the family or from outside. Wakisaka estimates that familiar infection accounts for about 60 per cent of all cases, and that about 40 per cent occur directly from mother to child.

(f) The families of infected school children show more than twice the percentage of infection of the community in general.

Infectiveness increases during epidemics associated with conjunctivitis, such as measles or colds, and irritation from dust during the field work of spring and harvest has a similar effect. Trachoma is especially frequent among peasant farmers and in fishing villages. Under control measures it declines more quickly in large cities than in the surrounding regions (Groenholm).

Morax and Lakah, from their great experience in northern Africa make the following statements:

“We have established that one-half or less of nurslings have been already contaminated in the course of the first year” and “between nurslings infected and those not infected, we observed no difference in the external appearance

of the lids and the palpebral fissure. They showed neither hyperaemia of the bulbar conjunctiva nor manifest secretion and only by everting the lids was the condition revealed."

These conclusions are fully confirmed by the results of other completed surveys; they may be accepted as a reliable guide for measures of control.

TREATMENT AND PROGNOSIS

It is not within the scope of this paper to enter into the details of treatment of the individual. Hippocrates (460-377 B.C.) curetted the granulations and applied a salt of copper; Aetius (502-575 A.D.) removed the tarsus; in the seventh century, Paul of Aegina performed plastic operations by splitting the lid, for trichiasis and entropion. These are the essentials of the treatment described in any textbook of the present day. Disappointing results are, however, more common than most text-books imply. MacCallan says: "It must be confessed that our present knowledge does not assist us to give help to the natural body processes [of cicatrization]; at present the only known methods of causing this change are by the application of caustics directly to the conjunctiva."

It is no doubt true that in a large proportion of cases, trachoma undergoes a spontaneous cure. The high percentage of recurrence in later life uncovered by recent surveys suggests that it would be better to regard many such cases as quiescent rather than cured. Patients with quiescent trachoma are prone to intercurrent attacks of acute conjunctivitis with exacerbations of trachoma remnants and often corneal complications. During such attacks infectiousness is increased. Apart from the control of complications, the chief value of routine treatment lies in the fact that it does greatly reduce the infectiveness.

The ultimate effect of trachoma on the sight is indicated by the following summaries:

TABLE I
APPROXIMATE PERCENTAGE OF VISION AFTER TRACHOMA

Authority	Blind	Bad V.	Fair V. $\frac{6}{12} - \frac{6}{18}$	Good V. $\frac{6}{6} - \frac{6}{9}$
MACCALLAN From examination of 1500 cases of trachoma in the Village of Baktum, Egypt.....	1.0	48	36	16
		Only able to go about	Able to read with difficulty	Good V in the better eye
GROENHOLM From 462 cases in private practice	2.0	7.0	20	70

The above figures may not be generally applicable; private patients would present a large proportion of serious and complicated cases, while the Egyptian figures are affected by the prevalence of other varieties of severe eye affections.

MacCallan says that, in the Irish Free State, more than 20 per cent of the trachomatous become statutorily blind (V less than 6/60).

The careful Lithuanian Survey found that 2.5 per cent of the trachomatous had become blind from the disease.

To the serious degree of social disability revealed by the above figures, there must be added the discomfort and economic handicap endured by the victim of trachoma over an indefinite term of years. Poverty and squalor may be as well the result of trachoma, as the cause.

The International Committee for the Investigation of Trachoma recommends various measures of control. These include:

- (1) Control of immigration.
- (2) Compulsory notification.
- (3) Examination and treatment of school children.
- (4) Segregation of the infected children in special schools.
- (5) Free treatment of all trachoma cases.
- (6) The establishment of trachoma stations and special departments in hospitals.
- (7) The special training of general practitioners to qualify them for diagnosis and treatment.
- (8) Supervision of surveys and treatment stations by a centralized administration.

In Great Britain inspection of school children and strict segregation of the trachomatous in special schools has reduced the percentage of cases from 42 to less than 5 in twenty-two years. Such patients may have to be segregated for two or three years and the method is feasible only where there are few cases.

In East Prussia in 1899, 13 per cent of school children were trachomatous. An energetic campaign was begun, which included monthly school examination, free treatment in special trachoma wards followed up after discharge, popular instruction and special training for local practitioners. In six years the trachoma had declined from 13 per cent to 3.5 per cent.

In Egypt a vigorous campaign by prophylaxis and treatment in the schools and with stationary and travelling eye hospitals has succeeded in reducing the percentage of trachoma from 97 to 94.6—only 2.4 per cent in twenty years.

Wibaut says: "Although in many countries the trachoma situation is a terrible one, there is no reason so far, for too pessimistic an outlook. Even in the countries most affected, the fight against trachoma does not seem to be without effect." Such effect as the record shows appears to be in inverse proportion to the prevalence of the disease at the beginning.

The control measures recommended are not everywhere feasible or of equal value. The selection must depend upon such local conditions as the degree of prevalence, the social standard of the population concerned and the financial resources available. Throughout Canada in general, where cases are few and scattered, the method adopted in Great Britain, of inspection and segregation, would appeal as the most prompt and effective. In localities where the disease is firmly entrenched, segregation is probably impractical and dependence must be placed upon a combination of other measures. For these, the similarity of local conditions should make the East Prussian campaign a reliable guide.

There is, however, one factor which I believe is of supreme importance and which has not yet been sufficiently stressed. It is indicated in the following re-statement: *The propagation of trachoma occurs mainly within the family, and the liability to infection is at its highest with nursing mothers and very young children.* These are the members of society least amenable to outside control. No arbitrary methods can reach them. They are responsible for two thirds of the spread of trachoma.

The nursing mother does not willingly infect her children or allow them to infect each other. It is the result of ignorance of the nature of the disease. Poverty is but a small factor. Obviously the only agent that can reach this

most important source is education—education carried on by whatever means may be found most effective, to the stage where willing and active co-operation is insured. The other measures are secondary to this end and important mainly in proportion to the degree in which they further it. The French Bureau of Hygiene has condensed its instructions to the staff in Morocco into two admirably simple and clear rules:

- (a) Look for and treat those who have trachoma as soon as possible.
- (b) Instruct those who live in contact with the disease concerning what they should do to keep themselves and their children free.

In their school campaign the French have made free use of pictorial placards which should be particularly effective and appropriate for use in this country.

Wherever serious foci of trachoma are uncovered, a campaign according to the above measures should be undertaken. It should be focussed chiefly in the schools but supplemented also by lectures and the local press. It is peculiarly important that, in the districts chiefly affected, the support of the local leaders, clerical, lay, and educational, should first be enlisted. Such support will insure a ready response; lack of it will lead to failure. Such a campaign must be sustained until the present generation of school children comes to maturity. In this way only can intelligent co-operation be permanently secured. Lacking this, it is impossible to see how any other measures, however stringent or rigidly applied, can prevent mothers from infecting their infants and continuing to spread this serious disease.

The Control of Diphtheria in Lethbridge

R. B. C. THOMSON, M.D.

Medical Officer of Health, Lethbridge, Alberta

TEN years ago diphtheria was one of the chief public health problems in the city of Lethbridge, Alberta, as elsewhere in Canada. Today it has been practically eliminated from the city.

In 1922 Lethbridge, with a population of 11,000 and an average daily Protestant public school attendance of 1,625, had 87 cases of diphtheria with 5 deaths. In 1923, as shown in the table, there were 11 deaths. In 1930 and 1931 the city was entirely free from diphtheria. This has been accomplished through specific immunization.

In 1924 the writer, as Secretary of the Board of Health of the City and Chairman of the Public School Board, was especially concerned with the menace of diphtheria and made arrangements in September

of that year to offer Schick testing and toxin-antitoxin to the school population. With the co-operation of Mr. A. J. Watson, Superintendent of Schools, consent records were given to every pupil by the teachers. Nine hundred and sixteen were returned with consent for testing and immunization if necessary. The material used was supplied by the Provincial Board of Health and the testing and immunization were carried out by Dr. D. H. Taylor, School Physician and Miss G. A. Dainty, Reg.N., School Nurse. In February, 1926, toxoid replaced toxin-antitoxin and the Schick test was eliminated. A total of over 3,000 children have been immunized to date in the schools and the practice has spread to the separate schools and to the consolidated schools in the rural districts. The success of the undertaking has undoubtedly been an important factor in stimulating immunization of children, especially pre-school, by the family physician.

DIPHTHERIA AND DIPHTHERIA IMMUNIZATION

LETHBRIDGE, ALTA., 1921-1930

Year	Cases	Deaths	Immunization	
			Annual	Total
1921	46	5
1922	87	5
1923	83	11
1924	67	8	900	900
1925	23	..	300	1150
1926	9	2	150	1350
1927	3	..	500	1700
1928	8	2	100	1850
1929	9	3	200	2000
1930	0	0	350	2350
1931	0	0

Among the 3,000 immunized, only two have contracted diphtheria, both very early in the campaign, one before the third dose and one very shortly after. Reactions of varying degree have been experienced but none gives rise to any alarm and very few have caused any discomfort for more than a day or two. The cases shown in the table include not only those occurring in the city, which are checked by Mr. Vallance, the Sanitary Inspector, but also those brought into the hospital, sometimes *in extremis*, from outside the city.

The last case of diphtheria in the city was in November, 1929, in a family none of whom had been immunized.

The success of our control of diphtheria has been due, I feel, to the lack of any coercion and the cordial co-operation of all concerned.

Report of the Committee on the Definition of the Word "Stillbirth" for Statistical Purposes*

E. GAGNON, M.D.

Statistician of the City of Montreal and Chairman of the Committee

THIS report of the Committee appointed at the annual meeting of the Canadian Public Health Association, Toronto, May, 1930, is divided into sections.

In the first section are to be found a multigraphed letter from the Chairman introducing to the health officers of the Provinces and leading cities a copy of the Progress Report of the Committee, a copy of the Report of the Health Committee of the League of Nations, a tentative draft of a special form that might be used and instructions correlated with it.

The second section contains the questions asked the medical health officers of the provinces and leading cities and the conclusions of the Committee.

SECTION I

LETTER SENT TO MEDICAL HEALTH OFFICERS

Dear Sir,

You will find enclosed a copy of a progress report made by the Committee appointed by the Vital Statistics Section of the Canadian Public Health Association, for the study of the definition of the word "Stillbirth" for Vital Statistics purposes; also the report of the Committee appointed by the League of Nations for the same purposes.

You will note in the progress report that the Chairman has been asked to communicate with the Health Section of the League of Nations to obtain a clear statement regarding the classification of infants born less than 28 weeks of gestation, and in which pulmonary respiration was established after complete birth.

According to information received, such births must be considered as live births, and the words "irrespective of foetal age" should be added to the definition of live birth as drafted by the League of Nations.

In accordance with the conclusion of the Progress report, we will deeply appreciate your answer and comment on the following three questions:

(1) Does the definition of the word "Stillbirth" adopted by the Health Committee of the League of Nations, meet with your approval?

(2) Do you consider it desirable that a stillbirth be reported on a special form, instead of being reported as a birth and a death?

(3) Supposing that the use of such a stillbirth form be adopted, would you consider it advisable to extend its use to infants dying less than 24 hours after birth, and whose birth has not yet been registered?

Personally, and I desire it to be fully understood that I am only expressing my own opinion in this special matter, I feel that it is most desirable that such a form be put in use, and that its extension to deaths occurring inside of 24 hours after birth, would eliminate much of the dreaded confusion on the part of those who are called to fill it. They would not have to decide if the birth was live or still, according to civil law or statistical method, but only supply data to the registrar on a special form.

The term "of less than 24 hours" would leave no ambiguity as to which cases the form is applicable, and can be easily understood. If properly filled, the form would give the registrar the necessary information to register the birth as a live or stillbirth according to the law of the province.

*Presented before the Section of Vital Statistics, Canadian Public Health Association, 20th Annual Meeting, Regina, June, 1931.

It is also felt that if such a form was adopted, the more frequent causes of the event to be reported should be printed on the back of the form, as a reminder to the attending physician.

It is not expected that such notes would be read, and the right information obtained in each instance, but it is considered that the proportion of complete answers would thereby be greatly increased.

Those remarks are made in conformity with the conclusions of my paper on "What is stillbirth," of which a copy is enclosed. I also enclose a tentative draft of the proposed form, with instructions that might be printed thereon.

Expecting your answer and comments at your earliest convenience, I beg to remain,

Yours very sincerely,

EUGENE GAGNON, M.D.,

*Superintendent of the Division of Vital Statistics, Montreal.
Chairman of the Committee.*

May 5, 1931.

PROGRESS REPORT MADE THE COMMITTEE ON DEFINITION OF STILLBIRTH

At the last meeting of the Vital Statistics Section of the Canadian Public Health Association in May, 1930, it was decided that a Committee should be appointed to consider a definition of stillbirth for statistical purposes, and the nomination of the Committee was entrusted to the Chairman of the Section, Mr. R. H. Coats.

Acting on the authority thus conferred upon him, Mr. Coats nominated as Chairman of the Committee on the Definition of Stillbirth, Dr. Eugene Gagnon, Superintendent, Division of Vital Statistics, Montreal, and as the remaining members of this Committee, the following: Dr. D. V. Currey, Medical Health Officer of St. Catharines to represent, in common with Dr. Gagnon, city health officers; Dr. Geo. G. Melvin, Chief Medical Officer, Department of Public Health, New Brunswick (or as his substitute, Dr. Wm. Warwick, District Health Officer, Department of Public Health, New Brunswick) to represent provincial health and registration offices; Dr. Helen MacMurchy, Chief, Child Welfare Division, Department of Pensions and National Health, Ottawa, to represent Dominion Public Health interests; and Miss Y. Beaudry of the Dominion Bureau of Statistics, to represent Dominion statistical interests. At the request of Dr. Gagnon, Mr. W. R. Tracey of the Dominion Bureau of Statistics acted as Secretary of the Committee.

It was felt that a Committee of this size was as fully representative as practical considerations would allow when distances to be covered were taken into account, in order that it might be feasible to hold at least one meeting in addition to communications by correspondence.

After preliminary correspondence between the Chairman and the other members of the Committee, a meeting of all the members was held at the Dominion Bureau of Statistics on Tuesday, December 9, 1930. At this meeting a careful study of the question was made in all its aspects, and it was decided to submit to all provinces and to the medical health offices of the leading cities the results of the deliberations of the Committee, in order to have the approval or suggestions of such offices before the final report of the Committee should be presented to the Vital Statistics Section of the Canadian Public Health Association at its next meeting.

It was first agreed that the definition of stillbirths as established by the Committee appointed by the Health Section of the League of Nations, should be followed as closely as practicable, in order that Canadian statistics of stillbirths should be as nearly as possible comparable with those of nations which have already accepted this definition. The definition of the League of Nations Committee has been published in the Report of the Sixth Session of the Health Committee of the League of Nations held at Geneva, April 26-May 1, 1926. A copy of this Report is annexed.

It was not clear to the members of the present Committee whether the intention of the annexed Report of the Committee of the League of Nations was to have classed amongst live births those cases in which the period of gestation was below the minimum of 28 weeks, but in which pulmonary respiration was established after complete birth. Up to the present, the rule followed by the Dominion Bureau of Statistics has been to exclude such cases from the statistics of both live births and deaths. As the matter might assume some importance in connection with infant mortality, it was discussed at considerable length, and it was finally decided that the Chairman should communicate with the Health Section of the League of Nations to obtain a clear statement of the intention of their Report in this report.

It was the opinion of the present Committee that an endeavour should be made by the provinces to have all cases reported of the delivery of a foetus under 28 weeks ($6\frac{1}{2}$ months) of gestation, as stated in the definition of the League, since it was felt that information useful for the study of public health and social problems could thus be obtained. For this purpose, as well as for the registration of stillbirth, it appeared to the Committee that a special form, embodying a medical certificate, and containing questions which would elicit the information required for the proper classification of the event, should be used. The Committee felt that it was also desirable to have the opinion of interested parties on the feasibility of extending the use of this form to infants dying within a certain period after birth, although it was realized that there might be valid objections to such an extension of its use.

LEAGUE OF NATIONS HEALTH COMMITTEE

SIXTH SESSION

Held from Monday, April 26, to Saturday, May 1, 1926

ANNEX 98

The report of the Committee studying the definition of Dead-Birth, which was circulated to all States members of the League and to Germany, Mexico, Russia and the United States of America, stated:

"It is requisite in drafting the desired definition to have a clear understanding of what constitutes a 'birth' and when such 'birth' is complete.

"In the proposed definition, the word 'birth' means the separation and extrusion of a foetus from the body of the parturient woman. The birth is to be deemed complete at the instant when the whole of the body of the foetus—head, trunk, limbs—is outside the body of the mother.

"The birth is to be deemed a live-birth if, after birth (as defined above), the infant breathes.

"The act of respiration is incontrovertible evidence of life and its continued absence is to be taken as proof of foetal death.

"It is desirable, for statistical purposes, that a distinction should be made between the birth of a foetus which can normally be expected to be capable of an existence independent of its mother and the expulsion of one which cannot, births in the latter category being regarded as miscarriages (abortions).

"A foetus capable of an independent existence is a viable foetus and is the product of a gestation which has lasted at least twenty-eight weeks. Such a foetus will normally measure at least 35 cm. from the crown of the head to the sole of the heel, the body being fully extended. We are of opinion that the latter criterion is the more trustworthy.

"Hence, a dead-birth is the birth of a foetus, after twenty-eight weeks pregnancy in which pulmonary respiration does not occur; such a foetus may die either (a) before, (b) during, or (c) after birth, but before it has breathed.

"It is desirable that every live-birth should be entered in the Register of Births. An infant born alive but dying before registration of its birth should be entered both in the register of births and in that of deaths, the prescribed certificate of cause of death being produced at the time of registration or subsequently thereto, as may be by law directed.

"It is desirable that every dead-birth should be inscribed in a Record of Dead-births. The person responsible for the registrations should be required to produce, whenever possible, a certificate of cause of death, such certificate to be signed by a recognised medical practitioner.

The information to be given in the certificate and the form thereof should be prescribed by the competent authority.

"In countries requiring the registration of births of non-viable foetuses (as defined above) such births should, we consider, be entered in a separate record, with such information as to duration of pregnancy, cause of abort on and other particulars as may be prescribed by the competent authority."

PROVINCIAL HEALTH SERVICE

FORM "C"—This form takes the place of forms D and F for all foetuses and infants either stillborn or having died less than.....after birth.

1. Place of Birth:
Provincial County.....Civil Municipality.....
No.....Street.....
Residence of parents.....No.....Street.....
2. Sex.....3. Gestation (single, twin, triplet, etc.).....
4. Parents: Married.....5. Father's name.....
6. Age.....7. Racial origin.....8. Occupation.....
9. Mother's name.....surname.....given name.....
10. Age.....11. Racial origin.....12. Occupation.....
13. Children of this mother born:
(A) after 6½ months of gestation: (B) before 6½ months of gestation
(a) born alive: (a) born alive:
(b) now living: (b) born dead:
(c) born dead:
14. Burial or cremation: place.....date.....19.....
15. Name of Parish or Church.....
(B) Municipality.....
(C) County.....
16. Signature of Clergyman or a person giving information.....

MEDICAL CERTIFICATE

17. Date of Birth.....19.....of death.....19.....
18. If birth is before term, mention:
(A) Duration of gestation.....Months.....
(B) Cause.....
See note No. 3.
19. After complete expulsion, did you observe:
(A) any pulsations of heart or cord.....
(B) any spontaneous respiration.....
See note No. 8.
20. If foetus died:
(A) before labour, how many: days.....hours.....cause.....
(B) during labour, cause.....
(C) after birth, cause.....
See note 6 A & B.
21. I hereby certify that details above are accurate.
SIGNATURE.....M.D.
Residence.....
Date.....month.....day.....19.....

NOTES TO BE PRINTED ON BACK OF FORM "C"

1. Answer all questions when applicable to the case. If not applicable, mention or write: "not applicable."
2. For statistical purposes, a birth is called:
(A) an abortion or miscarriage if birth occur less than 6½ months or 28 weeks after conception:
(B) a premature birth, if birth occur between 6½ and nine months:
(C) at term, when at nine months or after.
3. Abortions and miscarriages form a class by themselves, and it is very important that the period of utero-gestation be calculated carefully, and to mention if the foetus was advanced or not to 6½ months or 28 weeks of gestation (seven lunar months).
4. Abortion and premature birth may be the result of a local disease such as: laceration of cervix, metritis, prolapsus and flexion of uterus, rupture of membranes, hydramnios, and

also of criminal or therapeutical intervention. It may be also assigned to any of the causes enumerated in note 6A below.

5. A birth is complete when all the body of the foetus (head, limbs and trunk) is completely extruded from the body of the mother. The placental cord need not be severed.
6. A foetus or infant may die: (A) during pregnancy; (B) during labour; (C) after complete birth. Whenever possible, the attending physician should try to find if the death can be assigned to any one of the following causes:
 - (A) for death during pregnancy: syphilis, eclampsia and toxæmia of pregnancy, albuminuria, nephritis, acute disease (pneumonia, typhoid, etc.), placenta prævia, separation of placenta, other diseases of placenta and membranes, monstrosity, accidental fall or injury, overwork. If none of those causes applies to the case, then mention: "cause unknown";
 - (B) death during labour may be assigned to any of the causes above mentioned and also to prolapsed and compression of cord, any malpresentation, deformed or narrow pelvis, inertia of uterus, prolonged labour, dystocia, injury at birth, Caesarean section, etc., or unknown;
 - (C) death after birth may be caused by and assigned to any of the above causes.
7. In nearly all cases, the death of an infant, occurring less than hours or days after birth is liable to be assigned to a cause existing before or at birth. Whenever possible to determine the real cause, such terms as debility, premature birth, dystocia or injury at birth, must not be used unless accompanied by an explanation such as: debility, due to syphilis of mother, etc.; prematurity due to albuminuria, etc.; dystocia, due to deformed pelvis, etc.
8. A stillbirth is defined, for statistical purposes, the birth of a foetus which has passed 28 weeks (seven lunar months) of gestation and which, after complete extrusion from the mother, as defined in note five, has not breathed for any length of time spontaneously or by itself, apart from any artificial means of respiration.
Always answer by YES or NO to question 19 A & B.

SECTION II

QUESTIONS ASKED MEDICAL HEALTH OFFICERS

- (1) Does the definition of the word "Stillbirth" adopted by the Health Committee of the League of Nations, meet with your approval?
- (2) Do you consider it desirable that stillbirths be reported on a special form, instead of being reported as a birth and as a death?
- (3) Supposing that the use of such a stillbirth form be adopted, would you consider it advisable to extend its use to infants dying less than 24 hours after birth, and whose birth has not yet been registered?

CONCLUSIONS

The response to the questionnaire was most generous and the Committee tenders its grateful thanks to those who answered the various questions with such care. The individual answers contain many valuable suggestions which well repay careful consideration. As these have been presented in detail in mimeograph form to the members of the Section, they are not repeated here. The Committee, after due consideration, submit the following tentative conclusions:

- (1) Of the three questions studied by your Committee, the first one, concerning the definition of stillbirth, may be considered fundamental. The Committee recommends that the definition of the League of Nations be adopted and that, for statistical purposes, "a dead birth is the birth of a foetus after 28 weeks or 61½ months of pregnancy, measuring at least 35 c.m. from the crown of the head to the sole of the heel, in which pulmonary respira-

tion does not occur"; such a foetus may die either: (a) before; (b) during; (c) after birth or complete extrusion of the head, trunk, limbs from the body of the mother, but before it has breathed. The Committee consider that the addition of the words "after severance of placental cord" to the definition of complete birth, as suggested by Dr. Melvin, is not liable to add many to the number of stillbirths, and has no objection to the inclusion of those words in the definition.

As regards the departure from the actual procedure followed in the whole Dominion of not including, in the statistics of births and deaths, foetuses who might have respired after complete birth, but who have not attained 28 weeks of gestation or do not measure 35 c.m. (non-viable foetuses), the Committee considers that, before taking any step in that direction, further information be sought from the nations adhering to the definition of the League concerning their practice in this matter.

(2) Questions 2 and 3 are not considered as fundamental, but rather as a means to obtain better information on the subject covered by question 1. As they involve changes in the actual practice of collecting statistics, and are more or less contentious, the present Committee should be kept in existence for another year, in order that this matter be given further consideration. In the meantime, such provinces as are in favour of adopting a special form, and extending its use to infants dying less than 24 hours after birth, might make an agreement with the Dominion Bureau of Statistics to that effect, and better conclusions may be drawn from their experience.



CRYSTAL BALL ROOM, ROYAL YORK HOTEL.

(Morning sessions of the Ontario Health Officers' Association will be held in this room.)

Canadian Public Health Association
Ontario Health Officers' Association
ANNUAL MEETING



DR. W. J. BELL

Deputy Minister, Ontario Department of Health
President, Canadian Public Health Association

Headquarters, Royal York Hotel
Toronto, May 25, 26 and 27, 1932

Directory of Sessions

Wednesday, May 25th:

- 10.30 a.m.—Ontario Health Officers' Association . . . Ball Room.
- 9.15 a.m.—Canadian Public Health Association.
Section Meetings . . . Mezzanine Convention Floor.
Social Hygiene and Mental Hygiene
Laboratory
Vital Statistics
- 2.30 p.m.—General Meeting of the Associations.
- 8.00 p.m.—Meeting of the Executive Council . . . Clubroom, Main Mezzanine Floor.

Thursday, May 26th

- 9.15 a.m.—Ontario Health Officers' Association . . . Ball Room.
Canadian Public Health Association.
Section Meetings . . . Mezzanine Convention Floor.
Laboratory
Vital Statistics
Public Health Engineering
Industrial Hygiene
- 2.15 p.m.—General Meeting of the Associations . . . Banquet Hall.
- 7.30 p.m.—Joint Dinner of the Associations . . . Banquet Hall.
(Broadcast, Station C.P.R.Y.)

Friday, May 27th

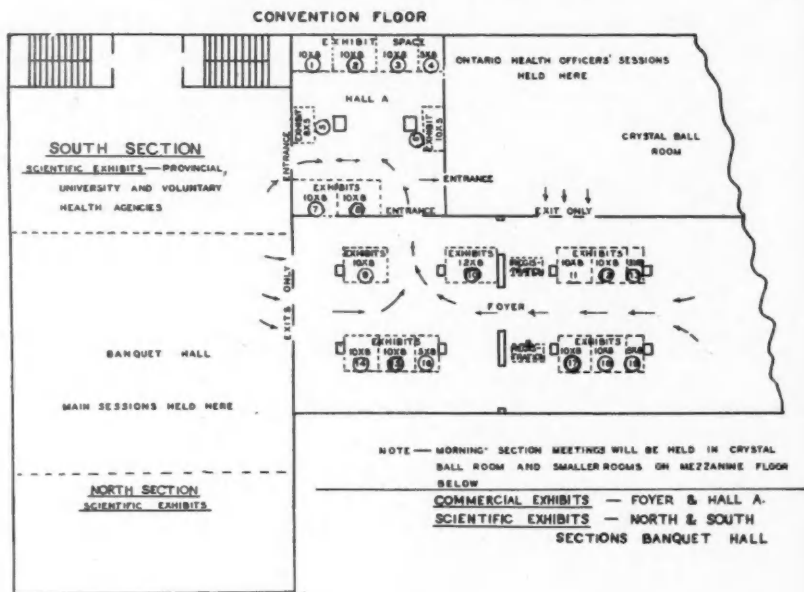
- 9.15 a.m.—Ontario Health Officers' Association . . . Ball Room.
Canadian Public Health Association.
Section Meetings . . . Mezzanine Convention Floor.
- 9.00 a.m.—Public Health Nursing.
- 9.15 a.m.—Public Health Engineering.
Vital Statistics.
Laboratory.
- 2.15 p.m.—General Meeting of the Associations . . . Banquet Hall.
- 4.30 p.m.—Afternoon Tea arranged by the Community Health Association of Greater Toronto and the Public Health Nursing Section, Canadian Public Health Association.

Exhibits

- Scientific Exhibits . . . North and South Sections of Banquet Hall.
Commercial Exhibits . . . Hall A and the Convention Foyer.

Scientific and Commercial Exhibits

PLAN OF EXHIBIT SECTIONS



THE value of exhibits, both scientific and commercial, at the annual meetings of the leading scientific associations is evidenced by the increasing attention given to their arrangement during the past few years. This year for the first time the Association has undertaken to provide both scientific and commercial exhibits. The response of the Provincial and Municipal Departments of Health and of our Universities to the invitation has been most gratifying. The original space provided for the scientific exhibits has had to be greatly increased and it is expected that several extensive displays will be added to the list of the exhibits enumerated on the following page.

It is the hope of the Committee that those attending the meetings will definitely arrange to devote time to studying these displays. During the mornings particularly, the exhibits may be studied, and provision has been made to have the scientific exhibit section open on Wednesday evening.

The Following Scientific Exhibits Have Been Arranged

Provincial Departments of Health

British Columbia, Alberta, Saskatchewan, Manitoba, Ontario and New Brunswick are presenting exhibits.

Canadian Public Health Association—Section Exhibits

Laboratory
Industrial Hygiene
Public Health Education
Public Health Engineering
Public Health Nursing

National Voluntary Health Agencies

Canadian Council on Child and Family Welfare (Child Hygiene Section)
Victorian Order of Nurses for Canada
Canadian Social Hygiene Council
Canadian National Institute for the Blind
The Ontario Society for Crippled Children
The Ontario Division of the St. John Ambulance Association
Canadian Tuberculosis Association.

Diphtheria Prevention

Several municipal Departments of Health are featuring outlines of their campaigns, including literature and statistical data. The city of Hamilton is presenting the "Diphtheria Exhibit" which was used with great success in that city. The preparation of toxoid will be described in an exhibit contributed by the Connaught Laboratories, University of Toronto.

Tuberculosis Control

A complete exhibit of interesting data from Municipal and Provincial Departments.

Cancer

A series of films of exceptional value arranged by the Departments of Radiology of the University of Toronto and of the Toronto General Hospital.

Plan to Spend Time in the Exhibit Section

Commercial Exhibit Section

THE Committee in charge of the Convention desire to direct the attention of all delegates to the exhibits of the following firms located in the Convention Floor Foyer and in Hall A, whose displays will be of very special interest:



CONVENTION HALL FOYER

ASSOCIATED CHEMICAL COMPANY, TORONTO
AYERST, McKENNA AND HARRISON, MONTREAL
CENTRAL SCIENTIFIC COMPANY OF CANADA, TORONTO
CRYSTAL CHEMICAL COMPANY, NEW YORK
DENVER CHEMICAL MFG. COMPANY, NEW YORK
DIFCO LABORATORIES, DETROIT
FLEURETTE STUDIOS, TORONTO
FRANCIS HANKIN & COMPANY LIMITED, TORONTO
J. F. HARTZ COMPANY LIMITED, TORONTO
KELLOGG COMPANY, LONDON
METROPOLITAN LIFE INSURANCE COMPANY, OTTAWA
NATIONAL SEWER PIPE COMPANY, TORONTO
PATERSON ENGINEERING COMPANY, TORONTO
RAILWAY & POWER ENGINEERING CORP. (AEROMIX), TORONTO
SYNTHETIC DRUG COMPANY LIMITED, TORONTO
"T-G" ENGINEERING SALES COMPANY, TORONTO
VI-TONE COMPANY, HAMILTON
WALLACE & TIERNAN, LIMITED, TORONTO
A. WANDER, LIMITED, PETERBORO
G. H. WOOD & COMPANY LIMITED, TORONTO

Editorials

THE PROBLEM OF HEART DISEASE

THE bare fact that heart disease leads as a cause of death, although given such prominence in annual reports, has, in itself, little public health significance. "Heart disease" on the death certificate, in very many cases, records the final breakdown of worn-out machinery,—a timely breakdown which simply indicates the fulfilment of the physical necessity of death after life's purposes have been fully served. Such deaths, attributed to heart disease, are in no sense a public health problem. Every physician knows that in such cases the term is merely one of convenience. The publicity generally given to heart disease mortality data serves, therefore, but to detract attention from heart disease as a public health and economic problem.

But heart disease is one of the most important problems with which we are faced and one which does not receive due attention.

In Ontario, 1925-29, organic heart disease was in fifth place as a cause of death in the early age group of 5-14, third place in the group of 15-49 years and second place from 50-59. We are less concerned in the fact that it was first in the 60-69 age group and little, if any, concerned from a public health standpoint in its being first in the age group of 70 and over. The data for the age groups under 50, unlike those for the older age groups, need no subtractions to correct for the laxity in indicating the cause of death. The deaths under fifty attributed to heart disease are really due to heart disease. And, ranking third place as a cause of death in the age group of 15-49, causing nearly ten per cent of all deaths in that age group, heart disease must be considered one of our most important public health problems. In the age group of 50-59, in which it accounted for nearly *one in six* of the deaths, heart disease is still a public health problem—and probably one that is becoming more serious.

Those deaths from actual heart disease which properly constitute a problem of public health can be placed, roughly, in two categories, those in the younger age groups and those in the later middle life, the two categories overlapping in the age period of perhaps 35-45. Rheumatic infection is largely responsible for those in the first group. Present knowledge does not allow one to attribute those in the second group to any one cause. The pathological lesion in many is coronary thrombosis. This condition has been recognized clinically only in recent years and the rapid increase in the number of deaths attributed

to it in these years suggests that it accounts for many of the deaths tabulated under heart disease—and possibly many attributed to other diagnoses; *e.g.*, indigestion. What part infection plays and what part other factors play in coronary thrombosis is not settled.

But what is to be done to meet the problem of heart disease in both periods of life? Can rheumatic infection be controlled? Is the infection, once established, amenable to treatment and susceptible of cure? No definite answer can be given to either question at this time—while heart disease continues to claim its annual toll of over 360 lives between the ages of 10 and 40 in Ontario. Could rheumatic infection be arrested by institutional care such as we have learned to accept as the rule in tuberculosis? Would such institutions serve to increase our knowledge of the spread of the infection, its nature, its earliest manifestations, etc.? In a word, would such institutions lead to the ultimate control of rheumatic infection? These questions are worthy of serious consideration.

Could the deaths in the second group be postponed by early diagnosis of an underlying cause or causes? Would closer medical supervision and periodic health examination avert the emergency? These questions cannot be answered at present by anything more than a guess, and a guess does not satisfy those of us who will, under our present state of knowledge, add to the total of deaths from heart disease. Moreover, the economic problem created by these deaths in early mid-life is one of vital importance to the state, one which must be tackled more energetically than heretofore if the burden is to be reduced.

Modern science has given the electrocardiograph which has opened up whole fields in physiological and clinical-pathological research. But that research is but in its infancy. The increasing urgency of the problem should require more intensive exploration of those fields with the hope of obtaining finer and more accurate diagnostic criteria and a much better understanding of the early conditions which lead finally to heart disease deaths. Such research work needs, besides the team work of the skilled physiologist, clinician and pathologist, the active support of those interested in public health, and especially the public health authority. Research in this field, as in others, cannot be carried out without material assistance. Industry meets its problems with intensive energetic research in those problems. We can well afford to borrow from Industry's experience and have heart disease, that due to rheumatic infection and that due to causes not so definitely defined, subjected to thorough, systematic investigation.

N. E. McKinnon.

PUBLIC HEALTH NURSING

RUBY M. SIMPSON, Reg.N., and MRS. GEORGE HANNA, Reg.N.

*Modern Trends in Public Health Nursing**

MISS KATE SHAW BRIGHTY, R.N., P.H.N.

TO speak of trends is to speak synonymously of directions, pathways, avenues, or means of pursuit of some definite object. It may be a very devious or roundabout course that is taken, but the aim must be there to cause people to form, or travel by thought or action in given way.

The comparative word "modern" immediately brings to our mind the word "ancient,"—so let us pause for a moment and think in terms of what has gone before, the foundation upon which we have built the roads along which Public Health Nursing has travelled.

The great lawgiver, Moses, handed down to us a most comprehensive and definite set of Health Rules set forth on sound basic principles, and persisting down through the ages these bear a strong resemblance to our own public health regulations.

Mention is not made of women workers in those days, but one feels convinced that laws so closely governing both sexes must have provided the opportunity for women to serve in the interests of humanity. It would prove a fascinating subject to trace the evolution of Public Health and the winding road down which it has come, held alive by tribal, community and state laws, to preserve the race, some-

times by elimination of weak and unhealthy human material and again by cleansing and keeping fit vast standing armies, but always with the idea of racial preservation.

Public health, then, has always been an integral part of the state and more or less, according to the times, state responsibility. With the coming of Christianity, greater opportunity was given women to express themselves in nursing. The rise and decline and the stabilization of nursing through the centuries is a romantic story itself. Suffice it to say that the middle of the sixteenth century brought St. Vincent de Paul, who established a Nursing Order with many sound nursing principles; and so on down through the years until we come to William Rathbone-Smith, a mid-Victorian, living in the City of Liverpool, a merchant interested in community welfare to the extent of spending his time and wealth in forming the nucleus of our present public health nursing systems, which have now spread throughout the English speaking countries.

Whither, then, Modern Trends in Public Health Nursing? Possibly education should come first on the list. It is a common fallacy and oft repeated that Miss A. was a successful student nurse, and, therefore, able to qualify as a public health nurse.

**Presented at the Public Health Nursing Section, 19th Annual Meeting, Canadian Public Health Association, Regina, June, 1931.*

Of course, we understand that where aptness is found in one direction, the same quality may be manifested again in another direction, all things being equal. However, public health nursing is not an outcropping of three years in a training school. To be sure the training is essential and may lead to public health work, but in the latter, one requires a different set of tools with which to work than those used in the hospital. An institutionalized nurse has a tendency to see the sick person to the exclusion of his environment, and as a vehicle carrying a disease, whereas, on the other hand, a public health nurse sees an individual endeavouring to maintain a standard of health within his own environment. There is widespread interest in hospitals to-day to offset this former condition, through the mental hygienist, social service worker, and the keeping of social case-history records. All of these influences tend to educate the student nurse towards extra, or outside of, institutional nursing, leading to public health nursing.

The public health nurse's rôle is that of a teacher of health; without this ability to teach, her chances of making a successful worker in the field are very limited. The scope and opportunity offered for nurses to study under skilled guidance has made rapid strides in the last fifteen years. This does not mean to imply that education is merely book learning. Experience gained in the field proves a valuable store of knowledge, and, according to the degree of native endowment and adaptability, will the value of education in the field of public health nursing be expressed

and appreciated. An educated viewpoint cannot, therefore, be too greatly stressed. The Survey of Nursing Education in Canada, under the direction of Dr. G. M. Weir, will, no doubt, have a great influence upon the grading and education of nurses.

This first mentioned trend leads us then to the second:—Generalization over Specialization.

The field of specialization has been much emphasized in the nursing group as elsewhere. In public health nursing we find specialists in tuberculosis, infant welfare, industrial nursing, mental hygiene, school nursing, and so forth, each one a fascinating subject in itself, requiring leadership and supervision, but, from a modern nursing viewpoint, not entire in its singleness.

A programme of procedure should commence with an individual as a point of contact, but the family of that individual, seen in its entirety, creates a unit of work and not the individual. It may be that Johnny's school health record shows a steady decline in his weight. The nurse in visiting the home to discuss Johnny's condition and the Chest Clinic to be held the following week, finds a pre-school child drawing her attention, a mother needing advice and counsel, and perhaps an adolescent girl agog for information. Although Johnny may have first claim, he could not possibly be separated from the family group if he, or they, are to be treated fairly.

This type of work was well demonstrated in a health centre where a generalized programme of public health nursing was conducted, and

where each supervisor was responsible for a special service, the supervisor also being an assistant in a second service, thereby tying together and creating a rotation of services. Thus, one found a supervisor of tuberculosis work discussing with a staff nurse the procedure of a post-partum visit in a home, and *vice versa*. Before a nurse had completed her records, a social and physical history of the entire family was written. This eliminated over-lapping of workers, and became increasingly interesting as a piece of work, was more intensive than extensive in its distribution, and was of inestimable value statistically. Hence, the general impression is towards Generalization over Specialization.

Decentralization would be the third trend. Decentralization is to be found in most of our public requirements. This is probably brought about by the distribution of people, common interests and modern facilities in transportation,—all the outcome of our present civilization. Here, perhaps, the public play the biggest part, not only by creating the need and demand-

ing the remedy, but as a means to an end, they sponsor their own setting up of local institutions of service.

In our own field of interest, for example, attention might be drawn to the widening circles of activities in health services found in New Zealand, ranging, according to the demands of the public, from laboratories of research and highly organized health activities, reaching outwards until the services are reduced to one nurse working alone in the Back Block Districts. Or a better illustration still would be the Health Unit which has taken such firm growth on this Continent. Here public health nursing is expressed very definitely, and again is demonstrated the need of a generalized programme of procedure. Decentralization can also be found in the zoning of work in a city health programme.

It would seem that Education, Generalization over Specialization, and Decentralization are three trends that are very vital steps in the future development of public health nursing.

REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES IN CANADA*
BY PROVINCES—MARCH, 1932.

Diseases	P.E.I.	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Diphtheria....	4	19	5	131	116	42	20	4	13
Scarlet Fever...	17	56	63	416	426	47	37	18	25
Measles.....	—	26	1	1756	3375	164	138	32	1131
Whooping Cough.....	2	73	—	166	465	81	54	18	54
German Measles.....	—	—	6	45	35	†	2	5	33
Mumps.....	19	302	1	579	797	123	68	30	65
Smallpox.....	—	1	—	8	2	1	12	—	12
Cerebrospinal Meningitis..	—	—	1	1	5	1	—	—	—
Anterior Poliomyelitis	—	—	—	—	—	—	—	—	—
Typhoid Fever	1	—	8	60	4	4	1	1	3
Trachoma.....	—	—	—	—	—	8	5	—	2

*Data furnished by the Dominion Bureau of Statistics, Ottawa.

†Not reportable.

PUBLIC HEALTH ENGINEERING

T. J. LAFRENIÈRE, C.E. AND A. E. BERRY, C.E., PH.D.

News of the Section

THE Convention of the Canadian Public Health Association to be held in the Royal York Hotel, Toronto, on May 25, 26 and 27th promises to be a most successful one. The programme, already published, shows two special sections devoted entirely to engineering subjects. The general sessions also have papers which will be of interest to the engineering profession. A very interesting feature this year is the large number of commercial and scientific exhibits. Engineering displays will be very prominent among these. Membership in the newly formed Public Health Engineering Section has increased in a most satisfactory manner. It is hoped that a very good attendance of engineering personnel will be present, whether members of the Association or not. The convention will welcome all those who are in any way interested in the advancement of public health activities.

Saturday, April 30th, marked a red letter day in the history of the City of Ottawa. The new water filtration plant was officially opened in the presence of many distinguished and interested persons. This 35 million gallons per day modern filtration plant has been under construction for some time. Water will be taken from the Ottawa River, a highly coloured but quite soft supply. The plant was undertaken after a trial plant had been operated for experimental purposes

for some months. The city, and those responsible for the completion of the plant, are to be congratulated upon the success which they have achieved. The city will no longer need to apologize for the appearance of the water drawn from the household taps.

The towns of Mimico and New Toronto have started work on the construction of a four million gallon sewage disposal plant to serve these two municipalities and part of the Township of Etobicoke. This is to be an activated sludge plant with the effluent discharged to Lake Ontario.

Deep well water supplies are under investigation at Huntsville, Etobicoke Township, North York Township, Trenton, Arthur, Weston, and at Guelph two wells have been completed and are ready to connect to the distribution system.

Mr. W. P. Near, for some years City Engineer of London, Ontario, has resigned to accept another position. Mr. Near has given very valuable service to the city, and has been recognized as one of the very prominent men in his profession.

The town of Exeter is considering the question of securing water for domestic purposes from deep wells. Shelburne also has under consideration the sinking of a new well to supplement their present supply and to replace one of the existing wells.

NEWS AND COMMENTS

P. A. T. SNEATH, M.D., D.P.H.

Ontario Cancer Commission Report

FOLLOWING a ten months' investigation in eight of the leading countries in which the problem of cancer is receiving special attention, the Commission has issued its Report. The Commission was appointed in May, 1931, and was composed of the Reverend Dr. H. J. Cody, of Toronto; Professor J. C. McLennan, University of Toronto; Dr. W. T. Connell; and Mr. Arthur R. Ford, London, Ontario. Dr. John W. S. McCullough, Chief Inspector of Health, Ontario, was Secretary. Copies of the Report may be obtained from the Provincial Department of Health, Ontario.

National Hospital Day, May 12th

GENEROUS support has been given to the observance of May 12th as a National Hospital Day in Canada. Nine regional committees have been appointed and efforts are being made, through the use of publicity and entertainment features, to focus the attention of each community on its hospital service.

British Columbia

THE Commission on Health Insurance has presented its Report to the Provincial Government. It is not believed that legislation will be enacted at this session, as the Government will investigate further the financial obligations involved.

Alberta

DR. A. C. McGUGAN, Epidemiologist, Provincial Department of Health of Alberta, has returned after an extended visit to Departments of Health in eastern Canada and the United States.

Saskatchewan

DR. H. H. MITCHELL has been appointed Superintendent of Regina General Hospital, succeeding

Dr. S. R. D. Hewitt, who is now Superintendent of the General Hospital, St. John, N.B.

Ontario

AN addition accommodating 100 patients is being made to the Gage Building of the Muskoka Hospital for Consumptives at Gravenhurst. This is part of the provision being made jointly by the Provincial and Federal Governments and the City of Toronto for increased hospital accommodation for tuberculosis.

The American Association for the Study of Goitre will hold its annual meeting in Hamilton, Ontario, on July 14, 15 and 16, 1932.

The Canadian Tuberculosis Association will hold its annual meeting in conjunction with the Canadian Medical Association in Toronto on June 22.

Mr. B. Evan Parry, F.R.A.I.C., and Mr. Harold J. Smith, M.R.A.I.C., are now associated in the practice of architecture in Toronto. Mr. Parry was Consulting Architect for the Department of Pensions and National Health, Ottawa, and Mr. Smith was a partner of Messrs. Stevens & Lee, Architects, of Toronto.

Quebec

PLANS are being completed for the new five-storey building which will house the Montreal Convalescent Home. It will provide accommodation for 100 patients and the estimated cost is \$250,000.

Nova Scotia

FOLLOWING the provision of a provincial public health nursing staff, nine nurses will commence their work under the direction of the Department of Public Health on May 1. The nursing service will be closely related to the tuberculosis clinics and the work of the nurses will include school and home visitation.

Books and Reports

D. T. FRASER, B.A., M.B., D.P.H.; R. R. McCLENAHAN, B.A., M.B., D.P.H.

A Doctor of the 1870's and 80's.

By William Allen Pusey, M.A., M.D., LL.D. Publisher, Charles C. Thomas, 220 East Monroe Street, Springfield, Illinois, 1931. 153 pages. Price, \$3.00 postpaid.

This book, well printed and illustrated, is a son's affectionate and faithful account of the life of his father, who practised in a small Kentucky town and the surrounding country in the years mentioned in the title. As he remarks in his preface, the author does not resort to fiction or romance, but believes that "an uncoloured account of an old-time country practitioner should prove historically worth while." In this he has succeeded so well that the reader might readily take Dr. Pusey as a type of the best class of practitioner of his time, and the record is well worth while.

G. D. P.

Body Mechanics: Education and Practice.

A publication of the White House Conference on Child Health and Protection. Publishers, The Century Co., 353 Fourth Avenue, New York, and London, 1932. 165 pages. Price, \$1.50.

"Body Mechanics," one of a series of publications of the White House

Conference on Child Health and Protection, is the report of an investigation into the relation of body mechanics and posture to the health and well-being of children. This volume of 165 pages summarizes the findings of the sub-committee on Orthopedics and Body Mechanics, and they believe that "there is positive evidence to prove that not less than two-thirds of the young children of the United States exhibit faulty body mechanics." Body Mechanics they define as "the mechanical correlation of the various systems of the body, with special reference to the skeletal, muscular and visceral systems, and their neurological associations. Normal body mechanics may be said to obtain when this mechanical correlation is most favourable to the function of these systems." They have found that improvement in this is associated with improvement in health and efficiency.

The book is illustrated by a number of charts and silhouettes and contains a series of corrective exercises for use in schools or at home. The recommendations and suggested programme of corrective exercises will be of value to all those concerned with the care and training of children.

BOOKS RECEIVED

A Doctor's Advice to His Son. By Keith F. Rogers, M.D., C.M. Publishers, The Ryerson Press, 299 Queen Street West, Toronto, 1931. 71 pages. Price, \$1.00.

Diphtheria, Its Distribution and Prevention. By J. Graham Forbes, M.D., F.R.C.P., D.P.H. With an introductory note by Sir Frederick Andrewes, MD.,

F.R.S. Publishers, John Bale, Sons and Danielsson, Ltd., 83-91 Gt. Titchfield Street, London, W.1, 1931. 832 pages. Price, 45/- \$10.00.

Cancer, What Everyone Should Know About It. By James A. Tobey, Dr. P.H. Publisher, Alfred A. Knopf, 730 Fifth Avenue, New York City, 1932. 310 pages. Price, \$3.00.

